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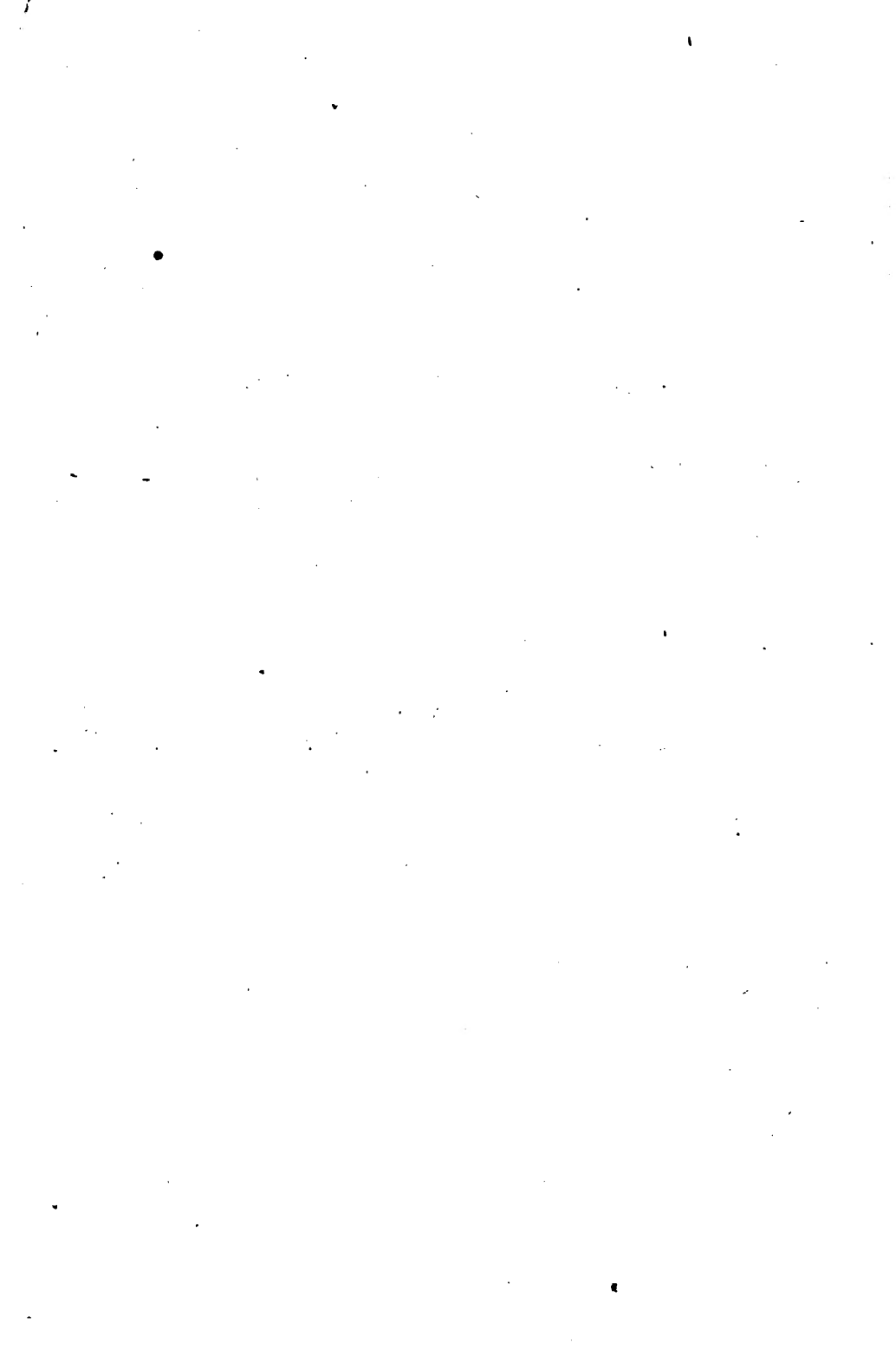
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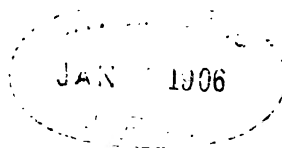
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TABLE OF CONTENTS.

List of Officers, 1903-1904	iii
List of Officers, 1904-1905	v
List of Members	ix
Geographical Distribution of Members and Institutions	27
List of Honorary Members	46
Constitution	47
By-Laws	52
Note	53
Proceedings of the Sixtieth Annual Meeting.....	55
Address of Welcome of Hon. A. M. Dockery	55
Address of Welcome of Dr. John H. Simon	59
Address of Welcome of Dr. Wm. G. Moore	60
Announcements by Secretary	64
Report of the Council	64
Treasurer's Report	66
Registration List of Members Present	67
Members Elected	72
Report of Nominating Committee.....	72
Report of American Journal of Insanity	74
Report of Council.....	76
Report of Auditing Committee.....	76
Report of Council	77
Report of Delegates to Foreign Associations.....	78
Annual Address. By CHAS. G. CHADDOCK, M. D.....	82
Extension of Tent Treatment to Additional Classes of the Insane. By C. FLOYD HAVILAND, M. D., and CHESTER LEE CARLISLE, M. D.,...	100
Discussion of Drs. Haviland's-Carlisle's paper	118
The Need for Careful and Exhaustive Scientific Study of So-Called Mental Epilepsy. By DWIGHT S. MOORE, M. D.....	120
Characteristics of the Scotch Lunacy System. By OWEN COPP, M. D..	124
A Plea for the Voluntary Admission of Certain Types of Insanity to Institutions for the Insane. By JAMES RUSSELL, M. D.....	140
Feigned Insanity: Malingery Revealed by the Use of Ether. By CHAR. G. WAGNER, M. D.....	148
A Medico-Legal Case of Well-Poisoning, with a Plea for a Hospital Observation Law. By HENRY R. STEDMAN, M. D.....	154

Intracranial Tumors in the Insane: with a Report on Two Cases. By IRWIN H. NEFF, M. D.	167
A Case of Moral Insanity, with Repeated Homicides and Incendiarism and Late Development of Delusions. By H. R. STEDMAN, M. D..	183
Hallucinations. By WILLIAM A. WHITE, M. D.	211
A Case of Sleep-Talking. By DWIGHT R. BURRELL, M. D.	237
Paranoia: Especially with Reference to its Definition, Subdivisions, and its So-Called Acute Variety. By CHAS. K. MILLS, M. D.	249
Two Borderline Cases: with Subsequent Sudden Development of Intense Suicidal Propensity. By C. EUGENE RIGGS, M. D.	262
Suicide and Insanity. By GERSHOM H. HILL, M. D.	274
A Few Remarks about Observation Wards and Hospitals. By E. STANLEY ABBOT, M. D.	284
Reconciliation of the Disparity between Hospital and Asylum Trained Nurses. By C. P. BANCROFT, M. D.	295
Discussion of Dr. Bancroft's Paper.	306
Review of a Recent Blood Stain and a New Blood Test, with Illustrations. By GEORGE C. CRANDALL, B. S., M. D.	309
Discussion of Dr. Crandall's Paper.	315
Are the Insane Responsible for Criminal Conduct? By JOHN PUNTON, M. D.	316
Discussion of Dr. Punton's Paper.	326
Organic Dementia. By J. M. KENISTON, M. D.	331
The General Conditions Associated with Insanity: Their Connotations, and Certain Deductions as to their Significance. By H. A. TOMLINSON, M. D.	369
The Mental Condition in Cretinism. By EDW. E. MAYER, A. M., M. D.	387
Hydrotherapeutics. By GEORGE T. TUTTLE, M. D.	404
Presidential Address. By A. E. MACDONALD, LL. B., M. D.	418
Memorial Notices:	
Dr. Orpheus Everts. By F. W. LANGDON, M. D.	431
Dr. Edward C. Runge. By FRANK R. FRY, M. D.	444
Dr. A. B. Richardson. By HENRY C. EYMAN, M. D.	446
Dr. A. B. Richardson. By W. H. SCOTT.	448
Dr. A. B. Richardson. By H. C. RUTTER, M. D.	457
Dr. George W. Foster. By I. W. BLACKBURN, M. D.	460
Dr. John Bernard Murphy. By R. W. BRUCE SMITH, M. D.	464

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- Hattie, W. H., M. D., Medical Superintendent Nova Scotia Hospital, Halifax, N. S.
- Haviland, Clarence Floyd, M. D., Assistant Physician Manhattan State Hospital East, Ward's Island, New York, N. Y. (*Associate.*)
- Hetherington, Geo. A., M. D., (L. M. Dublin), Superintendent Provincial Asylum, St. John, N. B.
- Hildreth, J. L., M. D., (formerly Member Board of Lunacy and Charity of Massachusetts), 14 Garden St., Cambridge, Mass.
- Hill, Chas. G., M. D., Attending Physician Mt. Hope Retreat, Baltimore, Md.
- Hill, Gershom H., M. D., (formerly Medical Superintendent Hospital for Insane, Independence), Equitable Bldg., Des Moines, Ia.
- Hill, Horace B., M. D., Assistant Medical Superintendent Maine Insane Hospital, Augusta, Me. (*Associate.*)
- Hill, S. S., M. D., Superintendent State Asylum for the Chronic Insane, Wernersville, Pa.
- Hills, Frederick L., M. D., Assistant Superintendent New Hampshire State Hospital, Concord, N. H. (*Associate.*)
- Hinckley, L. S., M. D., (formerly Medical Superintendent Essex County, Hospital), Newark, N. J.
- Hirsch, Wm., M. D., Neurologist to the German Poliklinik; Clinical Assistant in Department of Mental Diseases Cornell University Medical School, 52 E. Sixty-fourth St., New York, N. Y.
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- Hoch, August, M. D., Assistant Physician and Pathologist McLean Hospital Waverley, Mass. (*Associate.*)
- Hoch, Theodore A., M. D., Assistant Physician Worcester Insane Hospital, Worcester, Mass. (*Associate.*)
- Holley, Erving, M. D., Assistant Physician Willard State Hospital, Willard, N. Y. (*Associate.*)
- Houston, John A., M. D., Medical Superintendent Northampton Insane Hospital, Northampton, Mass.
- Howard, A. B., M. D., Medical Superintendent Cleveland State Hospital, Cleveland, Ohio.
- Howard, Emily Pagelson, M. D., Member Board of Trustees Boston Insane Hospital, Boston, Mass.

- Howard, Eugene H., M. D., Medical Superintendent Rochester State Hospital, Rochester, N. Y.
- Howard, Herbert B., M. D., Massachusetts General Hospital, Boston, Mass.
- Howland, Joseph B., M. D., Superintendent State Colony for the Insane, Gardner, Mass.
- Hughes, Chas. H., M. D., (formerly Medical Superintendent State Asylum No. 1, Fulton), Editor *Allenist* and Neurologist; Dean of Faculty Barnes Medical College, St. Louis, Mo.
- Hun, Henry, M. D., Albany, N. Y. (*Honorary.*)
- Hurd, Arthur W., M. D., Medical Superintendent Buffalo State Hospital, Buffalo, N. Y.
- Hurd, Henry M., M. D., (formerly Medical Superintendent Eastern Michigan Asylum); Superintendent Johns Hopkins Hospital, Baltimore, Md. (*President, 1899.*)
- Hutchings, Richard H., M. D., Medical Superintendent St. Lawrence State Hospital, Ogdensburg, N. Y.
- Hutchinson, Anna E., M. D., Woman Assistant Physician Manhattan State Hospital West, Ward's Island, New York, N. Y. (*Associate.*)
- Hutchinson, Henry A., M. D., Medical Superintendent Western Pennsylvania Hospital for the Insane, Dixmont, Pa.
- Hutchinson, Marcello, M. D., Superintendent Vermont State Hospital for the Insane, Waterbury, Vt.
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- Jelly, Geo. F., M. D., Chairman Massachusetts State Board of Insanity, 69 Newberry St., Boston, Mass.
- Keene, Geo. F., M. D., Superintendent State Hospital for the Insane, Cranton (Howard P. O.), R. I.
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- Kelly, James F., M. D., Assistant Physician Cleveland State Hospital, Cleveland, Ohio. (*Associate.*)
- Keniston, James M., M. D., Superintendent Hartford Hospital, Hartford, Conn. (*Associate.*)
- Kilbourne, Arthur F., M. D., Medical Superintendent Rochester State Hospital, Rochester, Minn.
- Kindred, J. Joseph, M. D., Consulting Physician and Business Manager River-Crest Sanitarium, Astoria, L. I., N. Y.
- Kinney, C. Spencer, M. D., Proprietor Easton Sanitarium, Easton, Pa.
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- Knapp, John Rudolph, M. D., Assistant Physician Manhattan State Hospital East, Ward's Island, New York, N. Y. (*Associate.*)

- Knight, Geo. H., M. D., Superintendent Connecticut School for Imbeciles, Lakeville, Conn.
- Knowlton, W. M., M. D., Channing Sanitarium, Brookline, Mass.
- Kuhlman, Helene J. C., M. D., Assistant Physician Buffalo State Hospital, Buffalo, N. Y. (*Associate.*)
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- Kunst, A. H., M. D., Superintendent West Virginia Hospital for the Insane, Weston, W. Va.
- Lamb, Robert B., M. D., Medical Superintendent Dannemora State Hospital, Dannemora, N. Y.
- La Moure, Chas. T., M. D., Assistant Physician Rochester State Hospital, Rochester, N. Y. (*Associate.*)
- Lane, Edward B., M. D., Superintendent Boston Insane Hospital, New Dorchester, Mass.
- Langdon, Chas. H., M. D., Assistant Physician Hudson River State Hospital, Poughkeepsie, N. Y.
- Langdon, F. W., M. D., Professor Nervous and Mental Diseases Miami Medical College; Neurologist to Cincinnati Hospital; Medical Director Cincinnati Sanitarium, 5 Garfield Place, Cincinnati, Ohio.
- Lawton, Shailer E., M. D., Medical Superintendent Brattleboro Retreat, Brattleboro, Vt.
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- Letchworth, William Pryor, LL. D., Glen Iris, Portage, N. Y. (*Honorary.*)
- Lewis, J. M., M. D., (formerly Superintendent Cleveland State Hospital), Cleveland, Ohio.
- Logie, Benjamin Rush, M. D., Assistant Physician Government Hospital for the Insane, Washington, D. C. (*Associate.*)
- Ludlum, Seymour DeWitt, M. D., Assistant Physician Friends' Asylum, Frankford, Philadelphia, Pa. (*Associate.*)
- Lyon, Samuel B., M. D., Medical Superintendent Bloomingdale Asylum, White Plains, N. Y.
- Lyons, A. J., M. D., Superintendent Second Hospital for the Insane, Spencer, W. Va.
- Mabon, William, M. D., President State Lunacy Commission, Albany, N. Y.
- MacCallum, G. A., M. D., Superintendent Asylum for the Insane, London, Ont.
- Macdonald, Alexander E., M. D., (formerly Superintendent Manhattan State Hospital East, Ward's Island), Columbia Court, 431 Riverdale Ave. cor. 115th St., New York City. (*President, 1904.*)
- MacDonald, Carlos F., M. D., 29 E. Forty-fourth St., New York, N. Y.
- Macphall, Andrew, M. D., M. R. C. S., Eng., L. R. C. P., London; Professor of Pathology and Bacteriology University of Bishop's College, Montreal; Pathologist to Protestant Hospital for the Insane, Montreal, Que. (*Associate.*)
- McBride, James H., M. D., (formerly Physician-in-Charge Milwaukee Sanitarium), Pasadena, Cal.

- McDonald, William, M. D., Assistant Physician Butler Hospital, Providence, R. I. (*Associate.*)
- McGeorge, James M., M. D., Assistant Physician Massillon State Hospital, Massillon, Ohio. (*Associate.*)
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- McKee, James, M. D., Superintendent State Hospital, Raleigh, N. C.
- McNicholl, Eugene C., M. D., Medical Superintendent Cobourg Asylum for the Insane, Cobourg, Ont.
- Macy, Wm. Austin, M. D., Medical Superintendent Long Island State Hospital, King's Park, L. I., N. Y.
- Madness, Frank Hosmer, M. D., Assistant Physician Manhattan State Hospital East, Ward's Island, New York, N. Y. (*Associate.*)
- Mallon, Peter S., M. D., Assistant Physician New Jersey State Hospital, Morris Plains, N. J.
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- Miller, John F., M. D., Medical Superintendent State Hospital, Goldsboro, N. C.
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- Mitchell, H. Walter, M. D., Senior Assistant Physician Danvers Insane Hospital, Hathorne, Mass. (*Associate.*)
- Mitchell, S. Weir, M. D., Philadelphia, Pa. (*Honorary.*)
- Mitchell, Thomas J., M. D., Superintendent State Insane Hospital, Asylum, Miss.
- Montgomery, Wm. H., M. D., Assistant Physician Willard State Hospital, Willard, N. Y. (*Associate.*)

- Moore, Emma W., M. D., Assistant Physician McLean Hospital, Waverley, Mass.
- Moore, Dwight S., M. D., Medical Superintendent North Dakota Hospital for the Insane, Jamestown, N. D.
- Morel, Jules, M. D., Medical Superintendent State Asylum; Commissioner in Lunacy, Mons, Belgium. (*Honorary.*)
- Morse, Jason, M. D., Assistant Superintendent Eastern Michigan Asylum, Pontiac, Mich.
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- Motet, A. M., M. D., 161 Rue de Charonne, Paris, France. (*Honorary.*)
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- Munson, James D., M. D., Medical Superintendent Northern Michigan Asylum, Traverse City, Mich.
- Murphy, P. L., M. D., Medical Superintendent State Hospital, Morganton, N. C.
- Nairn, B. Ross, M. D., Assistant Physician Buffalo State Hospital, Buffalo, N. Y. (*Associate.*)
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- Noyes, William, M. D., Superintendent Men's Department Boston Insane Hospital, Mattapan, Mass.
- Nunemaker, Henry B., M. D., Assistant Physician Pennsylvania Hospital for the Insane, Philadelphia, Pa. (*Associate.*)
- O'Brien, John D., M. D., Pathologist and Assistant Physician Massillon State Hospital, Massillon, Ohio. (*Associate.*)
- Orth, H. L., M. D., Superintendent and Physician Pennsylvania State Hospital, Harrisburg, Pa.
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- Page, H. W., M. D., Superintendent Hospital Cottages for Children, Baldwinville, Mass.
- Paine, N. Emmons, M. D., (formerly Superintendent Westborough Insane Hospital), Newton Nervine, West Newton, Mass.
- Palmer, Harold L., M. D., Superintendent Utica State Hospital, Utica, N. Y.
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- Paton, Stewart, M. D., Director of Laboratory Sheppard and Enoch Pratt Hospital; Associate in Psychiatry Johns Hopkins University, Baltimore, Md.
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- Pilgrim, Charles W., M. D., Medical Superintendent Hudson River State Hospital, Poughkeepsie, N. Y.
- Pomeroy, E. H., M. D., The Moraine, Highland Park, Ill.
- Potter, Ezra B., M. D., Assistant Physician Rochester State Hospital, Rochester, N. Y.
- Powell, Theophilus O., M. D., Medical Superintendent Georgia State Sanitarium, Milledgeville, Ga. (*President, 1897.*)
- Preston, R. J., M. D., Medical Superintendent Southwestern State Hospital, Marion, Va. (*President, 1902.*)
- Prout, Thos. P., M. D., Assistant Physician Fair Oaks, Summit, N. J. (*Associate.*)
- Punton, John, M. D., Superintendent Private Sanitarium; Professor Nervous and Mental Diseases University Medical College, Kansas City, Mo.
- Putnam, Emma, M. D., Assistant Physician Hudson River State Hospital, Poughkeepsie, N. Y.
- Quinby, Hosea M., M. D., Medical Superintendent Worcester Insane Hospital, Worcester, Mass.
- Ratliff, J. M., M. D., Resident Medical Superintendent Dayton Sanitarium, Dayton, Ohio.
- Régis, Emmanuel, M. D., Bordeaux, France. (*Honorary.*)
- Redwine, J. S., M. D., Superintendent Eastern Kentucky Asylum for the Insane, Lexington, Ky.
- Richardson, D. D., M. D., Resident Physician Department for Men State Hospital for the Insane, Norristown, Pa.
- Richardson, Wm. W., M. D., Assistant Physician Columbus State Hospital, Columbus, Ohio. (*Associate.*)
- Riggs, Charles Eugene, M. D., Professor of Nervous and Mental Diseases University of Minnesota; Chairman Lunacy Commission, 595 Dayton Ave., St. Paul, Minn.

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- Rogers, Arthur C., M. D., Superintendent Minnesota School for the Feeble-Minded, Faribault, Minn.
- Rogers, Joseph G., M. D., Medical Superintendent Northern Indiana Hospital for the Insane, Longcliff, Logansport, Ind. (*President, 1900.*)
- Rorick, E. H., M. D., Superintendent Athens State Hospital, Athens, Ohio.
- Rowe, G. H. M., M. D., Superintendent and Resident Physician City Hospital, Boston, Mass.
- Rowe, John T. W., M. D., Assistant Physician Manhattan State Hospital East, Ward's Island, New York, N. Y. (*Associate.*)
- Russell, James, M. D., Medical Superintendent Asylum for the Insane, Hamilton, Ont.
- Russell, Wm. L., M. D., State Lunacy Commission, Albany, N. Y. (*Associate.*)
- Rutherford, James, M. D., F. R. C. P., Edin., F. F. P. S., Superintendent Crichton Royal Asylum, Dumfries, Scotland, (*Honorary.*)
- Ryon, Walter G., M. D., Assistant Physician St. Lawrence State Hospital, Ogdensburg, N. Y.
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- Scribner, Ernest V., M. D., Medical Superintendent Worcester Insane Asylum, Worcester, Mass.
- Searcy, James T., M. D., Medical Superintendent The Alabama Hospitals, Tuscaloosa, Ala.
- Searl, Wm., M. D., Medical Superintendent Fair Oaks Villa, Cuyahoga Falls, Ohio.
- Sefton, Frederick, M. D., The Pines, Auburn, N. Y.
- Semalaigne, René, M. D., Medecin en Chef Maison de Santé, Neuilly sur Seine, Paris, France. (*Honorary.*)
- Shanahan, Wm. T., M. D., Second Assistant Physician Craig Colony for Epileptics, Sonyea, N. Y. (*Associate.*)
- Sharp, Edward A., M. D., Physician-in-Charge Hillbourne Farms, Katonah, N. Y. (*Associate.*)
- Shepherd, Arthur F., M. D., Superintendent Dayton State Hospital, Dayton, Ohio.
- Simpson, J. C., M. D., Assistant Physician Government Hospital for the Insane, Washington, D. C.
- Sinclair, Geo. L., M. D., (formerly Medical Superintendent Nova Scotia Hospital for the Insane), Provincial Inspector of Hospitals and Asylums, 25 Tobin St., Halifax, N. S.
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- Smith, Edwin Everett, M. D., (formerly Medical Director New Jersey State Hospital), Kensett, South Wilton, Conn.
- Smith, Geo. A., M. D., Medical Superintendent Manhattan State Hospital at Central Islip, Central Islip, L. I., N. Y.
- Smith, Gilbert T., M. D., Assistant Physician State Hospital for the Insane, Danville, Pa. (*Associate.*)
- Smith, J. W., M. D., Superintendent State Hospital No. 1, Fulton, Mo.
- Smith, Stephen, M. D., New York, N. Y. (*Honorary.*)
- Smith, S. E., M. D., Medical Superintendent Eastern Indiana Hospital for the Insane, Richmond, Ind.
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- Sprague, Geo. P., M. D., Superintendent High Oaks Sanitarium, Lexington, Ky.
- Spratling, Wm. P., M. D., Superintendent Craig Colony for Epileptics, Sonyea, N. Y.
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- Stearns, Henry P., M. D., Superintendent and Physician Retreat for the Insane, Hartford, Conn.
- Stearns, Wm. G., M. D., Medical Superintendent Oakwood and Lakeside Sanitarium, Lake Geneva, Wis.
- Stedman, Henry R., M. D., Bournewood Private Hospital for Nervous and Mental Diseases, South St., Brookline, Mass.
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- Stewart, Nolan, M. D., Assistant Physician State Insane Hospital, Asylum, Miss.
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- Stoker, Wm., A., M. D., Superintendent Southern Indiana Hospital for the Insane, Evansville, Ind.
- Stone, William A., M. D., Assistant Medical Superintendent Michigan Asylum for the Insane, Kalamazoo, Mich.
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- Tamburini, A., M. D., Reggio Emilia, Italy. (*Honorary.*)
- Taylor, Isaac N., M. D., Physician-in-Charge Broad Oaks Sanatorium, Morganton, N. C.
- Thompson, J. L., M. D., Assistant Physician State Hospital for the Insane, Columbia, S. C. (*Associate.*)
- Thompson, Whitefield N., M. D., Assistant Physician Brattleboro Retreat, Brattleboro, Vt.
- Tobey, Henry A., M. D., Medical Superintendent Toledo State Hospital, Toledo, Ohio.
- Tomlinson, H. A., M. D., Medical Superintendent St. Peter State Hospital, St. Peter, Minn.
- Torney, Geo. H., Jr., M. D., Assistant Physician Utica State Hospital, Utica N. Y.
- Toulouse, Edouard, M. D., Physician-in-Chief to Villejuif Asylum; Director Revue de Psychiatrie; Director of Laboratory of Experimental Psychology, l'Ecole des Hautes Etudes, Paris; Villejuif (Seine), France. (*Honorary.*)
- Townsend, Theodore Irving, M. D., Assistant Physician Utica State Hospital, Utica, N. Y.
- Turner, John S., M. D., Superintendent North Texas Hospital for the Insane, Terrell, Tex.
- Turner, O. M., M. D., Pathologist to State Insane Hospital, Jackson, Miss.
- Tuttle, Geo. T., M. D., Medical Superintendent McLean Hospital, Waverley, Mass.
- Urquhart, Alexander R., M. D., F. R. C. P. E., Superintendent Royal Asylum, Perth, Scotland. (*Honorary.*)
- Van Deusen, Edwin H., M. D., (formerly Superintendent Michigan Asylum for the Insane), Kalamazoo, Mich.
- Villeneuve, George, M. D., Medical Superintendent Saint Jean de Dieu Hospital for the Insane, Longue Pointe, Que.
- Voight, Arno C., M. D., Hawley, Pa. (*Associate.*)
- Voldeng, N. Nelson, M. D., Superintendent Cherokee State Hospital, Cherokee, Ia.
- Wade, J. Percy, M. D., Medical Superintendent Maryland Hospital for the Insane, Catonsville, Md.
- Wagner, Charles G., M. D., Medical Superintendent Binghamton State Hospital, Binghamton, N. Y.

- Ward, John W., M. D., Medical Director New Jersey State Hospital Trenton, N. J.
- Welch, G. O., M. D., Medical Superintendent Fergus Falls State Hospital, Fergus Falls, Minn.
- Wentworth, Lowell F., M. D., Deputy Executive Officer State Board of Insanity, Boston, Mass.
- West, Calvin B., M. D., Assistant Physician Manhattan State Hospital at Central Islip, Central Islip, L. I., N. Y. (*Associate.*)
- Wherry, J. W., M. D., Assistant Physician Clarinda State Hospital, Clarinda, Ia. (*Associate.*)
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- White, Whitman V., M. D., Consulting Physician Manhattan State Hospital, 2016 Fifth Ave., New York, N. Y.
- White, Wm. A., M. D., Superintendent Government Hospital for the Insane, Washington, D. C.
- Whitman, F. S., M. D., Superintendent Illinois Northern Hospital for the Insane, Elgin, Ill.
- Wilcox, Franklin S., M. D., First Assistant Physician Fergus Falls State Hospital, Fergus Falls, Minn. (*Associate.*)
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- Williamson, Alonzo P., M. D., Superintendent Southern California Hospital for Insane, Patton, Cal.
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- Wingate, Uranus O., M. D., Professor Nervous and Mental Diseases Wisconsin College of Physicians and Surgeons; Neurologist St. Mary's and Milwaukee County Hospitals; Consultant in Neurology to St. Joseph's Hospital; Honorary Member Medical and Surgical Staff Milwaukee Hospital for Chronic Insane; Physician-in-Chief Resthaven Sanatorium, 204 Biddle St., Milwaukee, Wis.
- Wise, Peter M., M. D., 1185 Broadway, New York, N. Y. (*President, 1901.*)
- Witte, M. E., M. D., Medical Superintendent Hospital for Insane, Clarinda, Ia.
- Wolfe, Mary Moore, M. D., Resident Physician Department for Women Norristown State Hospital, Norristown, Pa.
- Woodbury, Chas. E., M. D., Medical Superintendent Massachusetts Hospital for Dipsomanics and Inebriates, Foxboro, Mass.
- Woodson, C. R., M. D., Medical Superintendent State Hospital No. 2, St. Joseph, Mo.

Work, Hubert, M. D., Superintendent and Proprietor Woodcroft Hospital for Nervous Diseases; President Colorado State Board of Health, Pueblo, Col.

Worsham, B. M., M. D., Superintendent State Hospital for the Insane, Austin, Tex.

Wright, W. E., M. D., Assistant Physician Pennsylvania State Hospital, Harrisburg, Pa. (*Associate.*)

Yellowlees, David, M. D., F. F. P. S., LL. D., Physician-Superintendent Glasgow Royal Asylum, Gartnavel, Glasgow, Scotland. (*Honorary.*)

Additions and Changes to March 15, 1905.

Allison, Henry E. Deceased.

Anglin, James V., *Medical Superintendent Provincial Hospital, St. John, N. B.*

Becker, W. F., Consulting Neurologist Milwaukee County Hospital, 604 Goldsmith Building, Milwaukee, Wis.

Bolton, James R., *Physician-in-Charge Riverview, Fishkill-on-Hudson, N. Y.*

Brownrigg, Albert Edward, *Medical Superintendent Highland Spring Sanatorium, Nashua, N. H.*

Bryant, Percy, 134 Hawthorne St., Brooklyn, N. Y.

Bullard, E. L., (formerly Superintendent, etc.), 402 Camp Building, Milwaukee, Wis.

Campbell, Merritt B., 1608 Orange St., Los Angeles, Cal.

Eahner, Augustus A., Professor of Clinical Medicine in the Philadelphia Polyclinic, etc., 1019 Spruce St., Philadelphia, Pa.

Ferguson, James F. Deceased.

Harmer, Charles L., Philo, Ohio.

Harrington, Arthur H., (formerly Superintendent, etc.), 616 Madison Avenue, New York City.

Hetherington, George A., (formerly Superintendent, etc.), St. John, N. B.

Howland, Joseph B., Superintendent State Colony for the Insane, Gardner, Mass.

Keene, George F. Deceased.

Lamb, Robert B., Medical Superintendent Matteawan State Hospital, Fishkill Landing, N. Y.

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Pearce, F. Savary. Deceased.

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Wise, Peter M., 502 West 143rd St., Washington Heights, New York City.

Work, Hubert, Superintendent and Proprietor Woodcroft Hospital for Nervous Diseases, Pueblo, Col.

ERRATUM.

Page 18, Dr. A. E. Macdonald's address, for "Riverdale" read "Riverside."

Page 24, Dr. Townsend's address, for "Theodore" read "Theodore."

" Dr. "Urquehart," should read "Urquhart."

Page 26, Dr. Yellowlees' address, for "Gartnaval" read "Gartnavel."

Page 32, Dr. Howland's address, for "James" read "Joseph."

Page 38, Dr. Smiley's address, for "Amsterdam," read "Amsterdam."

Page 197, line 11, for "inanity" read "insanity."

In table, opposite page 376, headline, for "aberration" read "aberration."

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PENNSYLVANIA EPILEPTIC HOSPITAL AND COLONY FARM, OAKBOURNE.**PENNSYLVANIA TRAINING SCHOOL FOR FREEBLE MINDED, ELWYN.****ASYLUM FOR THE CHRONIC INSANE, WERNERSVILLE.**

S. S. Hill, M. D., Superintendent.

Charles K. Mills, M. D., Philadelphia.
Charles B. Mayberry, M. D., Retreat.
Jane Rogers Baker, M. D., Embreeville.
C. Spencer Kinney, M. D., Easton.
Susan J. Taber, M. D., Norristown.
Edward E. Mayer, M. D., Pittsburgh.
Augustus A. Eshner, M. D., 224 S. Sixteenth St., Philadelphia.
Arno C. Voigt, M. D., Hawley.

RHODE ISLAND—BUTLER HOSPITAL, PROVIDENCE.

G. Alder Blumer, M. D., Superintendent.
Henry C. Hall, M. D., Assistant Physician.
Wm. McDonald, M. D., Assistant Physician.

STATE HOSPITAL FOR THE INSANE, CRANSTON (HOWARD P. O.).

George F. Keene, M. D., Superintendent.

SOUTH CAROLINA—STATE HOSPITAL FOR THE INSANE, COLUMBIA.

J. W. Babcock, M. D., Superintendent.
J. L. Thompson, M. D., Assistant Physician.

SOUTH DAKOTA—SOUTH DAKOTA HOSPITAL FOR THE INSANE, YANKTON

L. C. Mead, M. D., Superintendent.
George Sheldon Adams, M. D., Assistant Physician.

TENNESSEE—CENTRAL HOSPITAL FOR THE INSANE, NASHVILLE.

John A. Beauchamp, M. D., Superintendent.
Albert E. Douglas, M. D., Assistant Physician.

EASTERN HOSPITAL FOR THE INSANE, KNOXVILLE.

Michael Campbell, M. D., Superintendent.

WESTERN HOSPITAL FOR THE INSANE, BOLIVAR.

John P. Douglass, M. D., Superintendent.
William A. Cheatham, M. D., Nashville.

TEXAS—HOSPITAL FOR THE INSANE, AUSTIN.

B. M. Worsham, M. D., Superintendent.

NORTH TEXAS HOSPITAL FOR THE INSANE, TERRELL.

John S. Turner, M. D., Superintendent.

SOUTHWESTERN INSANE ASYLUM, SAN ANTONIO.

Marvin L. Graves, M. D., Superintendent.

UTAH—UTAH STATE MENTAL HOSPITAL, PROVO CITY.

Daniel H. Calder, M. D., Assistant Physician.

VERMONT—BRATTLEBORO RETREAT, BRATTLEBORO.

Shaller E. Lawton, M. D., Superintendent.

Whitefield N. Thompson, M. D., Assistant Physician.

VERMONT STATE HOSPITAL FOR THE INSANE, WATERBURY.

M. Hutchinson, M. D., Superintendent.

Clayton G. Andrews, M. D., First Assistant Physician.

VIRGINIA—EASTERN STATE HOSPITAL, WILLIAMSBURG.

L. S. Foster, M. D., Superintendent.

CENTRAL STATE HOSPITAL, PETERSBURG.

William F. Drewry, M. D., Superintendent.

J. H. Garlick, M. D., Assistant Physician.

WESTERN STATE HOSPITAL, STAUNTON.

Benjamin Blackford, M. D., Superintendent.

SOUTHWESTERN STATE HOSPITAL, MARION.

R. J. Preston, M. D., Superintendent.

WASHINGTON—WESTERN WASHINGTON HOSPITAL FOR THE INSANE, FORT STEILACOOM.**EASTERN WASHINGTON HOSPITAL FOR THE INSANE, MEDICAL LAKE.****WEST VIRGINIA—WEST VIRGINIA HOSPITAL FOR THE INSANE AT WESTON, WESTON.**

A. H. Kunst, M. D., Superintendent.

WEST VIRGINIA HOSPITAL FOR THE INSANE AT SPENCER, SPENCER.

A. J. Lyons, M. D., Superintendent.

WEST VIRGINIA ASYLUM AT HUNTINGTON. HUNTINGTON.

L. V. Guthrie, M. D., Superintendent.

WISCONSIN—WISCONSIN STATE HOSPITAL FOR THE INSANE, MENDOTA.

E. L. Bullard, M. D., Superintendent.

NORTHERN HOSPITAL FOR THE INSANE, WINNEBAGO.

W. A. Gordon, M. D., Superintendent.

MILWAUKEE HOSPITAL FOR THE INSANE, WAUWATOSA.

M. J. White, M. D., Superintendent.

ASYLUM FOR THE CHRONIC INSANE, WAUWATOSA.

William F. Bentler, M. D., Superintendent.

MILWAUKEE SANITARIUM, WAUWATOSA.

Richard Dewey, M. D., Physician-in-Charge.

John B. Edwards, M. D., Mauston.

William F. Becker, M. D., Milwaukee.

Byron M. Caples, M. D., Waukesha Springs.

Uranus O. B. Wingate, M. D., Milwaukee.

Wm. G. Stearns, M. D., Lake Geneva.

WYOMING—STATE HOSPITAL FOR THE INSANE, EVANSTON.

PUERTO RICO—INSANE ASYLUM, SAN JUAN.

BRITISH AMERICA.

ONTARIO—ASYLUM FOR THE INSANE, TORONTO.

Daniel Clark, M. D., Superintendent.

ASYLUM FOR THE INSANE, LONDON.

G. A. MacCallum, M. D., Superintendent.

H. E. Buchan, M. D., Assistant Superintendent

ROCKWOOD HOSPITAL FOR THE INSANE, KINGSTON.

Charles K. Clarke, M. D., Superintendent.

ASYLUM FOR THE INSANE, HAMILTON.

James Russell, M. D., Superintendent.

ASYLUM FOR THE INSANE, MIMICO, TORONTO.

Nelson H. Beemer, M. D., Superintendent.

ASYLUM FOR THE INSANE, BROCKVILLE.

ASYLUM FOR THE INSANE, COBOURG.

Eugene C. McNicholl, M. D., Superintendent.

HOMEWOOD SANITARIUM, GUELPH.

Alfred T. Hobbs, M. D., Superintendent.

QUEBEC—PROTESTANT HOSPITAL FOR THE INSANE, MONTREAL.

T. J. W. Burgess, M. D., Superintendent.

James V. Anglin, M. D., Assistant Superintendent.

Andrew Macphail, M. D., Pathologist.

SAINT JEAN DE DIEU HOSPITAL FOR THE INSANE, LONGUE POINTE

George Villeneuve, M. D., Superintendent.

E. Philippe Chagnon, M. D., Montreal.

QUEBEC ASYLUM FOR THE INSANE, QUEBEC.

NOVA SCOTIA—NOVA SCOTIA HOSPITAL FOR THE INSANE, HALIFAX

W. H. Hattle, M. D., Superintendent.

Geo. L. Sinclair, M. D., Halifax.

NEW BRUNSWICK—PROVINCIAL ASYLUM, ST. JOHN.

George A. Hetherington, M. D., Superintendent.

PRINCE EDWARD ISLAND—HOSPITAL FOR INSANE, CHARLOTTETOWN.

V. L. Goodwill, M. D., Medical Superintendent.

NEWFOUNDLAND—ASYLUM FOR THE INSANE, ST JOHN'S.

**BRITISH COLUMBIA—PUBLIC HOSPITAL FOR INSANE, NEW WEST-
MINISTER.**

G. H. Manchester, M. D., Superintendent.

HONORARY MEMBERS.

- T. S. Clouston, M. D., F. R. C. P., F. R. S. E., Edinburgh, Scotland.
David Yellowlees, M. D., F. F. P. S., LL. D., Glasgow, Scotland.
A. Motet, M. D., Paris, France.
A. Tamburini, M. D., Reggio-Emilia, Italy.
Stephen Smith, M. D., New York, N. Y.
G. Stanley Hall, Ph. D., LL. D., Worcester, Mass.
Charles F. Folsom, M. D., Boston, Mass.
James Rutherford, M. D., F. R. C. P., F. F. P. S., Dumfries, Scotland.
S. Weir Mitchell, M. D., Philadelphia, Pa.
Victor Parant, M. D., Toulouse, France.
Jules Morel, M. D., Mons, Belgium.
Emmanuel Régis, M. D., Bordeaux, France.
Réné Semelaigne, M. D., Paris, France.
James M. Buckley, D. D., LL. D., Morristown, N. J.
Henry Hun, M. D., Albany, N. Y.
James Beveridge Spence, M. D., R. U. I. M. Ch., Burntwood, England.
Antoine Ritti, M. D., Charenton, près Paris, France.
Alexander R. Urquhart, M. D., F. R. C. P. E., Perth, Scotland.
William Prior Letchworth, LL. D., Glen Iris, Portage, N. Y.
Edouard Toulouse, M. D., Villejuif, France.
Wesley Mills, A. M. M. D., Montreal, Que.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

CONSTITUTION.

ARTICLE I.

This organization shall be known as the American Medico-Psychological Association, this name being adopted in 1892 by "The Association of Medical Superintendents of American Institutions for the Insane," founded in 1844.

ARTICLE II.

The object of this Association shall be the study of all subjects pertaining to mental disease, including the care, treatment, and promotion of the best interests of the insane.

ARTICLE III.

There shall be four classes of members: (1) Active members, who shall be physicians, resident in the United States and British America, especially interested in the treatment of insanity; (2) Associate members; (3) Honorary members; and (4) Corresponding members.

ARTICLE IV.

The officers of the Association shall consist of a President, Vice-President, Secretary—who shall also be the Treasurer—two Auditors, and twelve other members of the Association to be called Councilors; all of these officers together shall constitute a body which shall be known as the Council.

NOTE.—The Association of Medical Superintendents of American Institutions for the Insane was founded in 1844 by the original thirteen members. In 1891, when its membership had increased to more than two hundred, it was proposed, at the annual meeting of that year in Washington to form a better organization of the Association—its work having previously been done under the somewhat unstable rules of custom and a few resolutions scattered through its records. The proposition was agreed to, and at the annual meeting in Washington, in 1892, there was unanimously adopted the following Constitution and By-Laws, with the change of name to the AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

ARTICLE V.

The Active members of the Association shall include all past and present medical superintendents named in the official list published for 1892 of members of "The Association of Medical Superintendents of American Institutions for the Insane;" the Honorary members shall include those so designated in that list; the Associate members shall include all the assistant physicians named in the same list; it being provided that said list shall be corrected by the Council, as may be necessary to carry out the intention of the Constitution as to the continuance of existing membership.

Every candidate for admission to the Association hereafter as an Active member shall be proposed to the Council, in writing, in an application addressed to the President, at any annual meeting preceding the one at which the election is held. Honorary, Associate, or Corresponding members shall be proposed to the Council, in writing, in an application addressed to the President, at least two months prior to the meeting of the Association. Every application of whatever class must include a statement of the candidates name and residence, professional qualifications; and any appointments then or formerly held, and certifying that he is a fit and proper person for membership. In the case of a candidate for Active or Associate membership, the application shall be signed by three Active members of the Association; and by six Active members for the proposal of an Honorary or Corresponding member. The names of all candidates approved by a majority vote of members of the Council present at its annual meeting shall be presented on a written or printed ballot to the Association at its concurrent annual meeting, at least one session previous to that at which the election is made, which shall be by ballot at a regular session, and require a majority vote of the members present. Physicians who, by their professional work or published writings, have shown a special interest in the care and welfare of the insane, are eligible to Active membership. The only persons eligible for Associate membership are regularly appointed assistant physicians of institutions for the insane that are regarded to be properly such by the Council; and they are eligible for such membership only during the

time they are holding such appointments. After holding such an appointment three years, an Associate member may become an Active member by making application, in writing, to the Council, and upon its approval, being elected in the manner heretofore prescribed.

ARTICLE VI.

Physicians and others who have distinguished themselves by their attainments in branches of science connected with insanity, or who have rendered signal service in philanthropic efforts to promote the interests of the insane, shall be eligible for Honorary membership.

Physicians not residents in the United States and British America, who are actively engaged in the treatment of insanity, may be elected Corresponding members.

Active members only shall be entitled to a vote at any meeting, or be eligible to any office. Honorary and Corresponding members shall be exempt from all payments to the Association.

ARTICLE VII.

Any member of the Association may withdraw from it on signifying his desire to do so in writing to the Secretary: Provided, That he shall have paid all his dues to the Association. Any member who shall fail for three successive years to pay his dues after special notice by the Treasurer shall be regarded as having resigned his membership, unless such dues shall have been remitted by the Council for good and sufficient reasons.

Any member who shall be declared unfit for membership by a two-thirds vote of the members of the Council present at an annual meeting of that body shall have his name presented by it for the action of the Association, from which he shall be dismissed if it be so voted by two-thirds of the members present at its annual meeting.

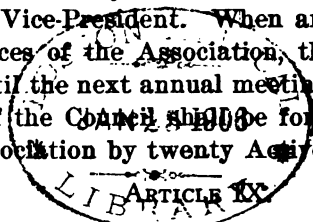
ARTICLE VIII.

The Officers and Councilors shall be elected at each annual meeting. They shall be nominated to the Association on the second day of the annual meeting in the order of business of

the first session of that day, by a committee appointed for that purpose by the President; and the election shall take place immediately. The election shall be made as the meeting may determine, and the person who shall have received the highest number of votes shall be declared elected to the office for which he has been nominated.

The President, Vice-President, the Secretary and Treasurer, and Auditors shall hold office for one year or until the beginning of the term for which their successors are elected. The Secretary and Treasurer and one Auditor are eligible for re-election. At the first election of Councilors, four members shall be elected for one year, four for two years, and four for three years; and thereafter four members shall be elected each year to hold office three years, or until their successors are elected. The President, Vice-President, one Auditor, and the four retiring Councilors are ineligible for re-election to their respective offices for one year immediately following their retirement. All the Officers and Councilors shall enter upon their duties immediately after their election, excepting the President and Vice-President. When any vacancies occur in any of the offices of the Association, they shall be filled by the Council until the next annual meeting.

A quorum of the Council shall be formed by six members; and of the Association by twenty Active members.



The President and Vice-President for the year shall enter on their duties at the close of the business of the annual meeting at which they are elected. The President shall prepare an inaugural address to be delivered at the opening session of the meeting. He shall preside at all the annual or special meetings of the Association or Council, or in his absence at any time, the Vice-President shall act in his place.

The Secretary and Treasurer shall keep the records of the Association and perform all the duties usually pertaining to that office, and such other duties as may be prescribed for him by the Council; and under the same authority he shall receive and disburse and duly account for all sums of money belonging to the Association. He shall keep accurate accounts and vouchers of all his receipts and payments on behalf of the

Association, and of all invested funds, with the income and disposition thereof, that may be placed in his keeping, and shall submit these accounts, with a financial report for the preceding year, to the Council at its annual meeting. Each annual statement shall be examined by the Auditors, who shall prepare and present at each annual meeting of the Association a report showing its financial condition. The Council shall have charge of any funds in the possession of the Association, and which shall be invested under its direction and control. The Council shall keep a careful record of its proceedings, and make an annual report to the Association of matters of general interest. The Council shall also print annually the proceedings of the meetings of the Association and the reports of the Treasurer and Auditors.

The Council is empowered to manage all the affairs of the Association, subject to the Constitution and By-Laws; to appoint committees from the membership of the Association, and spend money out of its surplus funds for special scientific investigations in matters pertaining to the objects of the Association, to publish reports of such scientific investigations; to apply the income of special funds, at its discretion, to the purposes for which they were intended. The Council may also engage in the regular publication of reports, papers, transactions and other matters, in annual volume, or in a journal, in such manner and at such times as the Council may determine, with the approval of the Association.

ARTICLE X.

Amendments to the Constitution and By-Laws shall be taken up for consideration at the first session of the second day of any annual meeting, and may be made by a two-thirds vote of all the members present: Provided, That notice of such proposed amendments be given in writing at the annual meeting next preceding. It shall be the duty of the Secretary to send to all the members a copy of any proposed amendment at least three months previous to the meeting when the action is to be taken.

BY-LAWS.

ARTICLE I.

The meetings of the Association shall be held annually. The time and place of each meeting shall be named by the Council, and reported to the Association for its action at the preceding meeting. Each annual meeting shall be called by printed announcements sent to each member at least three months previous to the meeting.

The Council shall hold an annual meeting concurrent with the annual meeting of the Association; and the Council shall hold as many sessions and at such times as the business of the Association may require.

Special meetings of the Council may be called by the order of the Council. The President shall have authority at any time, at his own discretion, to instruct the Secretary to call a special meeting of the Council; and he shall be required to do so upon a request signed by six members of the Council. Such special meetings shall be called by giving at least four weeks' written notice.

ARTICLE II.

Each and every Active and Associate member shall pay an annual tax to the Treasurer, the amount to be fixed annually by the Council, not to exceed five dollars for an Active member, or two dollars for an Associate member.

ARTICLE III.

The order of business of each annual meeting of the Association shall be determined by the Council, and shall be printed for the use of the Association at its meeting. The Council shall also make all arrangements for the meetings of the Association, appointing such auxiliary committees from its own body, or from other members of the Association, and making such other provision as shall be requisite, at its discretion.

NOTE.

The accompanying volume, containing the proceedings, papers and discussions of the American Medico-Psychological Association at its Sixtieth Annual Meeting, is printed by the Council with the approval of the Association.

E. C. DENT,
Secretary.

Ward's Island, New York City, October 1, 1904.



AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE SIXTIETH ANNUAL MEETING.

MONDAY, MAY 30, 1904.

FIRST SESSION.

The Association convened at 10 o'clock a. m., in the banquet hall of the Planters' Hotel, St. Louis, Mo., and was called to order by the President, Dr. A. E. Macdonald, of New York, N. Y.

The President: The first pleasant duty that devolves upon me as your president is that of introducing to you the gentlemen who have responded to the invitation of the committee of arrangements, and will welcome you to the state and city wherein you meet; and first the Governor of the State, the Hon. A. M. Dockery. It is an open secret, though he is himself too modest to obtrude the fact, that the Governor is also a physician, and I know it will not lessen the pleasure you will have in hearing him, that he is a member of our profession as well as governor of his state.

GOVERNOR DOCKERY: Since the opening of the Exposition the pleasant duty has devolved on me of welcoming a great many organizations holding their annual meetings in this city. I have performed that duty about three times a week, and my vocabulary has been practically exhausted by reason of the demands upon it, to extend in formal language welcoming words to these societies. I can say, however, that I have greeted no association that afforded me more real pleasure to welcome than this convention of physicians.

Missouri never fails to express her old-time hospitality. And yet I am not sure but that old-time hospitality is a little decadent now and necessarily so, because the world is growing so populous. Conditions, therefore, differ from those of fifty years ago. Then everybody was welcome, and it was considered almost an offense to offer remuneration

for a night's lodging. My welcome may not take on that extreme old-time form, but in the warmth of cordial greeting I welcome you to this city and its wonderful exposition. I am sure you will visit this greatest of all exhibits of the world's resources, and do not forget to visit the Missouri building. It is a beautiful architectural gem, and in convenience of arrangement, beauty and richness of furnishing, it fittingly typifies the grandeur of our state. Go to the Missouri building, and you will receive an old-fashioned welcome.

The practice of your profession is a benediction to the human race. It restores the wasted frame and relieves both physical and mental ailments. Not all diseases are curable, but the duty so well performed by you leaves no opportunity for regrets, while the gratitude of those to whom you minister is the frank expression of their appreciation.

You are called to the responsible charge of great institutions to relieve the exhaustless necessities of those most sadly afflicted. Man's intellect is the essential attribute which lifts him above the animal world. Nothing can be more pitiful than a mind dethroned by disease. The brightest minds have yielded to its insidious blight, baffling so often the highest skill. The knowledge, however, that every known means has been employed brings more satisfying reward than the largest fee that could be paid.

Yours is essentially a mission of mercy and charity. Under your ministrations the afflicted are restored to health and happiness, and the baneful shadow of insanity gives place to the sunlight of reason. It is almost like the resurrection, because a mind dethroned leaves the vacuum of death. Its restoration brings joy and gladness to the patient and the physician, as well as the family and friends.

The researches of the medical scientist have made marvelous advances for the profession. The same progress noted in the practice of medicine and surgery is apparent in all avocations, but in none more so than in the medical profession. From the old-time methods of treatment when blood-letting, quinine and calomel were substantially the only sheet anchors of the physician, we have progressed until now new and effective remedies and improved methods are open to the medical world. I can remember when I was a young physician, just starting out to practice (it was not very long ago either, for I do not want the ladies to think I am old), when blood-letting was considered one of the essential remedies. Calomel and quinine were the staples. The first thing I did when visiting a patient was to examine the tongue and the pulse. But when I prescribed remedies it did not make much difference as to the speed of the pulse, or the appearance of the tongue, I always gave calomel and quinine. (Laughter.)

The triumphs of the medical and surgical art to-day are available not only to the wealthy, but by means of public hospitals are within easy reach of the humblest and the poorest.

Many schools of medicine have sprung into existence, but with all the changes the old school of medical faith has maintained its supremacy.

In our time the work of the specialist is largely exploited. Confining himself to a single branch of medicine or surgery the practitioner accomplishes more for the ills of humanity than would be possible should his ability be distributed over the whole field. The education of the specialist must be as thorough as that of the general practitioner, but building upon this broad and sure foundation his energies and talents are then devoted to a particular branch, and the result is advantageous both to the specialist and the people.

We are now on the threshold of the twentieth century, the most marvelous century of the ages, the age of steam, electricity and invention; and because of these mighty forces there has been more progress in the medical profession during the last thirty years than was made in two hundred years before. Taking a comprehensive view of all the avocations and industries of life, all the inventions of this age, we find that within the last fifty years we have seen more of real advancement than the world saw in ten thousand years previous to this time. I am glad to know that the profession with which I was once actively identified has kept pace with the spirit of the times, and that no branch of the profession has done more to bring health and happiness to the human race than that represented by the men who have charge of the asylums of the country. (Applause.)

The family physician becomes unconsciously the family mentor. His knowledge of physical and mental defects, if there be any, makes it possible for him to advise where none else could. In the domain of confidential intercourse with the family he exercises exclusive prerogative. Life and happiness are in his hands. Rightly directed his opportunity for good is practically limitless.

The lame, the halt, the blind, and all those otherwise afflicted appeal to the wisdom and learning of the physicians. The dark, bold and stormy night finds him as ready to perform an errand of mercy as when the sun is bright and the air balmy, when the soft southern wind first stirs the tender leaves of the springtime.

Your profession, in its relation to other avocations by which men gain a livelihood, in its tender ministrations to mankind, towers above them all as the mountain peak towers above the level of the plain. It is essentially beneficent in its influences and effects. Countless thousands bless and laud the physician when by some discovery he adds to the storehouse of medical skill, and is thus able to further restrain the ravages of disease.

The physician does more real charitable and practical work at less compensation, than the members of any other profession. Somewhere in the future, when rewards are distributed, I think possibly the physician will have one more jewel in his crown of rejoicing than the representative of any other avocation of this life.

Both the nation and the States have dealt wisely and progressively with the propositions of prevention and cure of disease. No session of a legislature passes without some statutory contribution intended to promote the general welfare. Congress is also equally devoted in its efforts to protect the people. Stringent, though merciful, enactments are enforced with absolute impartiality. The members of your celebrated profession are thus encouraged in their best efforts for the eradication of those scourges which threaten and destroy our homes.

The science of medicine and surgery has always accomplished much but more will yet be done. The spirit of this century forbids stagnation. The medical explorer will still bring to light new discoveries which will inure to the health and happiness of the people.

And now, gentlemen, permit me again, in behalf of this imperial commonwealth, to extend to you a most hearty and cordial welcome to the chief city of the Louisiana Purchase. Missouri is proud to welcome you as her guests. It is hardly necessary that I should say anything to you about Missouri, about her greatness and glory, the development of her resources, her splendid State government, and the fact that we are devoted to her. No other State furnishes the amount of zinc that we have in the southwest. Some of the richest iron and lead mines in the world are in the southeast. There are great counties which produce apples and peaches, and where we will yet have fifty millions of people. It is scarcely necessary to speak of Missouri's horticultural and agricultural resources, or of the manufacturing industries of her greatest city, in which there is more wealth to-day than was possessed by the thirteen colonies a century ago. Yet proud as we are of this commonwealth, the contribution to the nation of the statesmanship of Thomas Jefferson, we are prouder still of being a State of the American Union. I speak as a Missourian, but I exult still more in the fact that I am an American citizen. Our State is only one-forti-fifth of this great American republic, but if you do not believe what I tell you about Missouri's greatness go out and see what we have at the Exposition. Note the exhibits of New York and other States, and when you do I am sure you will agree that the Exposition now in progress surpasses all previous expositions in the history of the world. It is twice as great as the Chicago Exposition, and six times greater than the Philadelphia Exposition, wonderful as people thought them to be. You will have before you the progress of the world. In this display of our country's resources we are justly proud that we are citizens of the mightiest republic known to history.

Dr. Woodson: In view of the fact that Governor Dockery is not only the Governor of the State, but a member of the profession, I move that the Governor be made an honorary member of this Association for this occasion. Carried unanimously.

Governor Dockery: I make my most grateful acknowledgment.

The President: The next speaker was expected to have been the Mayor of the city, the Hon. Rolla Wells. He has however been prevented from coming and has sent as his representative, Dr. John H. Simon, President of the Board of Health of this city, whom I now have the honor to introduce to you.

DR. SIMON: The Honorable Rolla Wells, mayor of the city of St. Louis, being unable, much to his regret, to attend this meeting, has asked me to serve in his place. His Honor in making this selection was imbued not with the idea that I could make an address adequate to the occasion but rather that being the Health Commissioner of the city of St. Louis, I would take a deep interest in matters which will come before this Association, and this, indeed, I do.

I cannot hope to fill his place to your entire satisfaction, but shall be content to essay the role of what you gentlemen sometimes call the "psychic equivalent."

If it is true that in nature there is nothing great but man, and in man nothing great but mind, then of necessity this Congress of Psychologists is the most important and far-reaching of all the 300 or more conventions which are to be held in St. Louis during the World's Fair period.

We shall see gathered about us during the next few months men representing every line of human enterprise and every phase of human thought. Here at the greatest exposition the world has ever seen will be heaped the treasures of the earth. Science will unfold here her most recent and most wonderful discoveries. Art will be there to dazzle the beholder with the magnificence and splendor of her work. Electricity, transportation, the varied industries, machinery, aeronautics, education, social economy, each of these will claim the attention of the visiting multitudes. The peoples of every race and clime, from the Eskimo in his furs to the South Sea Islander, transplanted bodily with all their environments, will teach the lesson of universal brotherhood. But far above and beyond all this gorgeous panorama is that with which you are engaged, the mind of man. Others may deal with railroads or electricity, with painting or sculpture, with numberless human interests, each one in its own sphere, but you are dealing with that which created and evolved all these and without which they could not even have been conceived. Taken in its ultimate analysis, the World's Fair with all its accessories, animate and inanimate, is a psychological event, it is the composite human brain of twenty centuries.

And yet this convention will come and go, and the true worth of the psychologists and alienists of this country will not be appreciated. The great questions, for example, of the prevention of crime, of responsibility and other questions so vital to our government, are scarcely heeded by the people. They do not realize what it is for the alienist to "fetter strong madness in a silken thread." The substitution of

music and flowers for chains and dungeons has been so gradual as to be to most persons imperceptible; and I hope that one of the benefits accruing to humanity from this 60th Convention of the American Medico-Psychological Association will be the enlightenment of the public regarding the manner of caring for the insane as compared with the harsh methods of a few decades ago.

I am not here, however, to break in on affairs psychological, and you are undoubtedly anxious to proceed with your program. I have the honor, therefore, to bid you on the part of the city of St. Louis, a profoundly sincere welcome.

I speak the sentiment of every one of the 700,000 citizens of St. Louis when I say the city is yours to command. St. Louis has sometimes been called slow. She is slow in some things. She is slow to take offense from her sister cities. She is slow to grasp at every financial bauble the tempter holds out to her: That is why she is called the *solid* city. She is slow to open her portals for the departure of her guests once they have called. She is slow to fall into many of the ways of the East, because she is distinctly a Western city. She has laid off her buckskins and her holster, but she is slow to step into patent leathers and part her hair in the middle. She is, to use one of your own expressions, *in the borderland*. But she yields to no city in the world in hospitality. Those of you who have been in the West know what Western hospitality means; those of you who have not will carry home with you the memory of happy hours spent with women as fair and men as brave as America can produce.

Once more, then, Mr. President, in conclusion, I bid you a warm, sturdy, Western welcome.

The President: The closing address of welcome will be made by the President of the Missouri State Medical Society, Dr. Wm. G. Moore, whom I have the honor to introduce.

DR. MOORE: You have given me the pleasantest duty that I could possibly conceive on this or any other occasion, the duty of bidding the stranger welcome within our gates. Did I not know the medical profession as I do, I should feel my inadequacy in the presence of these people who deal entirely with the brain. You, ladies and gentlemen, would intimidate me if I went back to the thought only that you deal with brains, brains, brains. There is a saving fact, however, in the belief that *all* the brains you deal with are not better than my own and my presence here is the result of my position in the State Medical Society. Only this and nothing more. We are in the welcoming business in St. Louis. We have welcomed everybody from every quarter of the known world. We have welcomed the *Igorrotes*, the head hunters, and now it is our supreme pleasure to welcome the head fixers. (Laughter.)

"Canst thou not minister to a mind diseased? Pluck from the memory a rooted sorrow?" If you can, then I declare that since the

Prince of men was on this earth no nobler mission has ever been given to those made in his image than yours. I could use words of welcome until they would grow mountain high, but I believe that platitudes shall have no place in welcoming this Association, which is, I learned this morning, the oldest National medical organization in America. In St. Louis or in any other city in the world you would be given a warm welcome. I thought this morning of the picture of Pinel at Salpetriere removing the shackles from the insane. It was that picture which came to my mind when these gentlemen were good enough to ask me to fill this position. All of you have seen it. All appreciate it. All remember the lessons taught by the artist's brush. The shackles are being removed from a typically mind-dethroned, reasonless woman, and while the thoughtful, quiet-faced Pinel, who knew of much of what that meant, was engaged, a devoted nurse is kneeling and kissing the unheeding hands. From that day when the moral, humane treatment of the insane was inaugurated, to this good hour, the followers of Pinel have constantly contributed to the welfare of humanity, have constantly broken away from the chains and fetters until now the place I used to dream of as a child as the most hideous corner of the earth has become really a garden for the cultivation of the remnants of human reason. Are you welcome when we recall these things? Thrice welcome.

On the other hand, gentlemen, I hope you will pardon me if I digress for a while in order to refer to Governor Dockery's address. In speaking of our wonderful progress he mentioned the surgical hospital. That is getting to be a chestnut, that surgical hospital. I want to recall the fact that medicine especially has done more for the benefit of the human race, has saved more lives, and will continue to save more lives by one thing alone than all the surgery, and that is by the use of diphtheria antitoxin. (Applause.) I notice that the ladies of various societies and clubs talk a good deal about "mere man." The ladies probably understand a good deal better than I do about "mere man." I am not a surgeon, I am a "mere" doctor. As Jonathan Hutchinson said, "I am a specialist on the skin and all that it contains." I am a mere doctor and I say in the presence of all the surgeons that can be assembled on the face of this earth if they will recall the fact that through the labors of medical men Asiatic cholera, diphtheria, small-pox, yellow fever, typhus fever, and all the great epidemics of the world have become but reminiscences, shadows of the past, and that this was brought about before Christian science, osteopathy, or any fads of this kind were born. Now, if I am touching on anybody's corns when I say Christian science, please pull your feet a little further backward. (Laughter.) Now then, gentlemen, we are progressing toward the cure of tuberculosis, and if we accomplish that your surgeons will be tin-horn artists in the rear of the great brass band procession of the world. (Laughter.) They have assumed everything. The surgeon wipes his knife in public, looks wise and looks

fierce, and will tell you what he is going to do and often tells you what he can't do, and when there is a death from an operation, he says it was perfectly successful, but the technique was a little defective, perhaps the nurse didn't have clean hands.

Then there is another thing that I wish to bring to your attention as a physician and when I am in the presence of physicians, I feel that I am at home. I never appeared in the presence of such an assembly in my life that I did not feel that I should take you by the hand and say, "You are my professional brethren." Another thing to which Governor Dockery referred is the doctor in politics, but until the doctor realizes that he has political power, you will never be able to know what the medical profession should have and would have just as sure as it is demanded. But we have been such amiable fellows, working quietly, doing unremittingly for those that demanded our services, working for nothing, but sweet charity, we have neglected our rights. Until the medical profession of America is strongly organized (and much has been done toward this end in the last few years), until you rise to the full stature of your political strength, you will not know what a lion you are in the menagerie of men. Did you ever see a delegation to the legislature from a city? Did you ever hope for any reform, did you ever think they could not be bought when you looked into the faces of such fellows? If you did, you have optimism that I know nothing about. The most discouraging thing to my mind on the face of this earth is the sight of a delegation from a city. They are the wharf-rats, the saloon bums, the riff-raff, the scum, and now and then a man to keep up the respectability of the government. God made the country and man made the city. That is the explanation. You may hope for nothing in the way of reform that does not pay somebody something in the coin of the realm, and I can say that if you do not use your vote you will wake up some morning to find Lydia Pinkham president of the United States. Now Lydia has been getting out a preparation especially recommended to ladies and gentlemen who want a fine complexion. The W. C. T. U., for whom I have the most profound regard, has been asked to co-operate in the exposure of the character of this beautifier. The Ladies' Home Journal, under the supervision of Edward Bok, (God bless him), brings out a list which you and I are permitted to study, given by the Massachusetts State analyst, which shows that about an ounce of a certain "remedy" will make a buck Indian walk on his tiptoes, and why? Because it contains thirty per cent more or less real alcohol. Now the authorities of the Indian Territory, which some of you ladies and gentlemen would refer to as the wild and woolly west, prohibited the sale of the most wonderful remedy in the world. Know what it is? "Peruna." Why? Because the bucks all went on the warpath and their white brethren and the squaws did likewise.

Now as to another matter. When the armies had done their excellent work and were ordered home from Cuba and the Spaniard had

withdrawn and left entrenched one enemy that could not be dislodged by revolver or bayonet, to menace the work, do you remember what happened? A company of five gentlemen, doctors, was marshaled quietly by the President and bidden to take all the authority and told to go down into that pest-hole, Cuba, and find out what it was that caused yellow fever and how to eradicate it, with the result that the desert has been made to blossom as the rose. There is now no epidemic wave; there are sanitary conditions, and prosperity in the island. At what cost? A young man, Lazear by name, when it was proven that the infection of yellow fever could not be conveyed by contact alone, bared his arm and allowed a contaminated mosquito to bore into his tissues and infect him and poison him and kill him. If ever a more Christ-like thing were done on this earth than the sacrifice of this young man's life that others could live, it is beyond my knowledge at this moment. (Applause.) Well may you applaud. Well may you applaud, and still I doubt if there are half a dozen in this room that know the names of the members of that commission which has done more for the world's benefit than all the armies that have ever been marshaled, or that ever will be marshaled in the history of the ages. The eradication of yellow fever will do more for the world than all the battles ever fought. Strange that when the President of the United States was forming the Panama commission, in which sanitation plays so conspicuous a part, not one single doctor's name was mentioned or even suggested. Why? Because you have been playing the small fiddle so long that you are afraid to strike the cymbals. If you will demand what is due, you must be granted it. The politician is a wise soothsayer and prognostician, and you let the pulse of the American medical profession be felt once by the politician and he will know exactly what the future of the case will be. The prognosis will be made at once and the treatment will be once accorded fairly to the greatest and most wondrous medical profession in the world, because already you have progressed beyond the empirical in dealing with stricken man.

If I could command words to give the welcome which I feel I should be glad indeed. The gates of the city are open to you, the doors of our homes are open to you, the hearts of our citizens are open to you, and we bid you enter and welcome. (Great applause.)

The President: There are certain contingencies when the desire of a body in meeting assembled is so apparent that it is not necessary to go through with the usual formalities of a motion and so assuming that there is no objection and that it is the desire of my audience that the gentlemen who have so eloquently and kindly addressed us should receive your thanks for their welcome, I proceed to convey them. And now, gentlemen, in behalf of the Association I give you heartiest thanks for your cordial words of welcome.

The Secretary made the following announcements:

That telegrams or letters of regret had been received from Drs. Carlos F. MacDonald, G. Alder Blumer, E. N. Brush, B. D. Evans, Michael Campbell, and R. H. Hutchings.

That a letter of condolence on the death of Dr. Richardson had been received from Dr. Spence of Burntwood near Litchfield, England.

That Dr. Wesley Mills had written thanking the Association for his election to honorary membership.

That Dr. Milligan had acknowledged the receipt of the resolution in respect to prison service renewed by the Association last year.

That Mrs. A. B. Richardson had written a warm letter of appreciation for the tender thought of her husband, for the letters and expressions of sympathy received, and for the floral tribute sent by the Association.

REPORT OF THE COUNCIL.

The Secretary read the following reports from the Council:

Pursuant to a provision of the Constitution that whenever vacancies occur in any of the offices of the Association, they shall be filled by the Council until the next annual meeting, the Council has elected Dr. A. E. Macdonald, President, to succeed Dr. A. B. Richardson, deceased; Dr. T. O. Powell, Vice-President, to succeed Dr. Macdonald; and Dr. C. R. Woodson, Councilor for one year to succeed Dr. E. C. Runge, deceased.

It was moved that the report be accepted and adopted and the action of the Council in the election of officers be approved. Carried unanimously.

The Secretary: The Council recommends that the Nominating Committee be instructed to nominate a delegate and alternate to the Executive Committee of the Congress of American Physicians and Surgeons.

On motion the report of the Council was accepted and adopted.

The Secretary: The Council recommends an appropriation of \$200 for the Journal of Insanity for the fiscal year beginning May 1st, 1904.

On motion the report was accepted and adopted.

The Secretary: The Council recommends that dues for Active members for the coming year be placed at \$5.00 and for Associate members at \$2.00.

On motion the report was accepted and adopted.

The Secretary reported that the Council recommended the following for membership in the Association:

For Active Membership—Maurice C. Ashley, M. D., Middletown, N. Y.; Albert Moore Barrett, M. D., Hathorne, Mass.; J. G. Furnish, M. D., Lakeland, Ky.; Richard H. Hutchings, M. D., Ogdensburg, N. Y.; G. H. Manchester, M. D., New Westminster, B. C.; Harry William Miller, M. D., Taunton, Mass.; Flavius Packer, M. D., New York, N. Y.; Middleton L. Perry, M. D., Parsons, Kansas; Arthur F. Shepherd, M. D., Dayton, Ohio; Wm. A. Stoker, M. D., Evansville, Ind.; Geo. Stockton, M. D., Columbus, Ohio; Geo. H. Torney, Jr., M. D., Utica, N. Y.; Geo. T. Tuttle, M. D., Waverley, Mass.; M. Nelson Voldeng, M. D. Cherokee, Iowa; Wm. A. White, M. D., Washington, D. C.

For Associate Membership—George Sheldon Adams, M. D., Yankton, S. Dak.; Joseph B. Betts, M. D., Buffalo, N. Y.; Benjamin W. Baker, M. D. Taunton, Mass.; Isabel A. Bradley, M. D., Columbus, Ohio; Ida J. Brooks, M. D., Westboro, Mass.; Edson C. Brown, M. D., Massillon, Ohio; Mary Christianity, M. D., Norristown, Pa.; Homer E. Clarke, M. D., Pontiac, Mich.; Earle E. Gaver, M. D., Columbus, Ohio; Harold C. Goodwin, M. D., Concord, N. H.; Geo. T. Harding, Jr., M. D., Columbus, Ohio; Chas. L. Harmer, M. D., Massillon, Ohio; D. E. Harris, M. D., Massillon, Ohio; Theodore A. Hoch, M. D., Worcester, Mass.; Clifford J. Huyck, M. D., Westboro, Mass.; Geo. H. Maxfield, M. D., Concord, N. H.; James M. McGeorge, M. D., Massillon, Ohio; John D. O'Brien, M. D., Massillon, Ohio; Wm. W. Richardson, M. D., Columbus, Ohio; Clarence J. Slocum, M. D., Pleasantville, Westchester Co., N. Y.; Calvin B. West, M. D., Central Islip, N. Y.; J. W. Wherry, M. D., Clarinda, Iowa; G. H. Williams, M. D., Columbus, Ohio.

The names thus submitted were placed on a ballot as required by the Constitution for action at a subsequent session.

TREASURER'S REPORT.

The following report was read by the Treasurer:

C. B. BURR, Treasurer, in account with the American Medico-Psychological Association.

DR.		DR.	
May 1, 1903.	To Balance	\$1,315.64	
May 1, 1904.	To Dues from Active Members.....	1,225.25	
	To Dues from Associate Members.....	194.10	
	To Interest	44.76	
	To Sale of Transactions.....	11.75	
	To Sale of Gummed Lists.....	1.00	
	To Sale of Blackburn's Autopsies.....	1.63	
	To Sale of Postage.....	20.00	
CR.		CR.	
May 1, 1904.	By Printing Transactions, Lists of Mem- bers, Reprints	\$ 844.90	
	By Mailing Cases	19.50	
	By Express on Reprints and Transac- tions	80.47	
	By Stationery, Miscellaneous Printing, Programs and Ballots.....	77.05	
	By Stenographer and Clerical Hire...	167.60	
	By Secretary's Expenses at Washing- ton	44.25	
	By Appropriation, AMERICAN JOURNAL OF INSANITY	200.00	
	By Postage	106.00	
	By Telegraphing	14.31	
	By Cuts for Papers.....	86.05	
	By Registry Cards	4.50	
	By Index Medicus	5.00	
	By Floral Design Dr. Richardson.....	25.00	
	By Portfolio	2.00	
	By Amount Newton M. Shaffer, Treas- urer, Apportionment, Printing Transactions of Congress.....	199.81	
	Balance to New Account:		
	Genesee County Savings Bank, \$110.92		
	First National Bank, Savings Account	750.13	
	First National Bank, Commer- cial Account	76.64	
			937.69
		\$2,814.13	\$2,814.13

The reasons that the Association's expenses have not been met by the revenue during the last year are two:

1st. The cost of the proceedings of the Congress, taxed according to membership upon the different societies, for this Association, amounted to \$199.81.

2nd. The Transactions of this Association were a third larger than those of any previous year and correspondingly more expensive. Aside from their bulk, also, the Association has been put to considerably increased expense on account of the large number of illustrations. It is thought that ordinarily the revenue from dues and other sources of income will be sufficient to meet current expenses and indeed leave a small surplus, as has hitherto been the case during the years of my treasurership.

C. B. BURR, *Treasurer.*

The President: You have heard the report of the Treasurer. What is your pleasure regarding it? The Treasurer suggests that it be referred to the Auditors about to be elected. All in favor of this disposition of the matter, please say Aye. Carried.

The President: The chair appoints the following members to serve as Nominating Committee:

Dr. J. Percy Wade, of Catonsville, Md.

Dr. Wm. M. Edwards, of Kalamazoo, Mich.

Dr. W. A. Gordon, of Winnebago, Wis.

A recess was then taken for the purpose of registration.

The following members were present during the whole or a portion of the meeting:

Allen, H. D., M. D., Milledgeville, Ga.

Ashley, Maurice C., M. D., Medical Superintendent State Homeopathic Hospital, Middletown, N. Y.

Bancroft, Chas. P., M. D., Superintendent New Hampshire State Hospital, Concord, N. H.

Beemer, Nelson H., M. D., Medical Superintendent Mimico Asylum for the Insane, Toronto, Ont.

Beutler, W. P., M. D., Superintendent Milwaukee Asylum for the Chronic Insane, Wauwatosa, Wis.

Burgess, T. J. W., M. D., Medical Superintendent Protestant Hospital for the Insane, Montreal, Que. (President-Elect.)

Burr, C. B., M. D., Medical Director Oak Grove Hospital, Flint, Mich. (Vice-President-Elect.)

Burrell, Dwight R., M. D., Resident Physician Brigham Hall, Canandaigua, N. Y.

Calder, D. H., M. D., Assistant Physician, State Mental Hospital, Provo City, Utah. (Associate.)

Caples, Byron N., M. D., Superintendent Waukesha Springs Sanitarium, Waukesha, Wis.

Chaddock, Chas. G., M. D., Professor Mental and Nervous Diseases, St. Louis University, St. Louis, Mo.

Chamberlain, G. L., M. D., Medical Superintendent Upper Peninsula Hospital for the Insane, Newberry, Mich.

Clark, J. Clement, M. D., Superintendent Springfield State Hospital, Sykesville, Md.

Coe, Henry Waide, M. D., Medical Director Crystal Springs, Portland, Ore.

Crandall, Geo. C., M. D., Professor Internal Medicine, St. Louis University, St. Louis, Mo.

Crumbacker, W. P., M. D., Superintendent Independence State Hospital, Independence, Ia.

Dent, E. C., M. D., Medical Superintendent Manhattan State Hospital, West, Ward's Island, New York, N. Y. (Secretary.)

Dewey, Richard, M. D., Physician-in-Charge, Milwaukee Sanitarium, Wauwatosa, Wis.

Dill, D. M., M. D., Superintendent Essex County Hospital for the Insane, Newark, N. J.

Drewry, Wm. F., M. D., Superintendent Central State Hospital, Petersburg, Va.

Edwards, Wm. M., M. D., Medical Superintendent, Michigan Asylum for the Insane, Kalamazoo, Mich.

Eyman, Henry C., M. D., Medical Superintendent, Massillon State Hospital, Massillon, Ohio.

French, Edward, M. D., Superintendent Medfield Insane Asylum, Harding, Mass.

Fry, Frank R., M. D., Professor Diseases of the Nervous System, Medical Department Washington University, St. Louis, Mo.

Furnish, J. G., M. D., Superintendent Central Kentucky Asylum for the Insane, Lakeland, Ky.

Gordon, W. A., M. D., Superintendent Northern Hospital for the Insane, Winnebago, Wis.

Graves, Marvin L., M. D., Superintendent Southwestern Insane Asylum, San Antonio, Texas.

Guthrie, L. V., M. D., Superintendent West Virginia Asylum, Huntington, W. Va.

Harmon, F. W., M. D., Superintendent Longview Hospital, Cincinnati, Ohio.

Hill, Chas. G., M. D., Physician-in-Charge, Mt. Hope Retreat, Baltimore, Md.

Hill, Gershom H., M. D., formerly Superintendent Independence State Hospital, Des Moines, Ia.

Hobbs, A. T., M. D., Medical Superintendent Homewood Sanitarium, Guelph, Ont.

Houston, J. A., M. D., Superintendent Northampton Insane Hospital, Northampton, Mass.

Howard, Adams B., M. D., Superintendent Cleveland State Hospital, Cleveland, Ohio.

Hughes, Chas. H., M. D., Editor Alienist and Neurologist, 3857 Olive St., St. Louis, Mo.

Hurd, Arthur W., M. D., Superintendent Buffalo State Hospital, Buffalo, N. Y.

Kilbourne, Arthur F., M. D., Superintendent Rochester State Hospital, Rochester, Minn.

Kunst, A. H., M. D., Superintendent West Virginia Hospital for the Insane, Weston, W. Va.

Lane, Edward B., M. D., Superintendent Boston Insane Hospital, New Dorchester, Mass.

Langdon, F. W., M. D., Medical Director Cincinnati Sanitarium, 5 Garfield Place, Cincinnati, Ohio.

Lewis, Joseph M., M. D., Formerly Superintendent Cleveland State Hospital, Rose Bldg., Cleveland, Ohio.

Lyons, A. J., M. D., Superintendent Second Hospital for the Insane, Spencer, W. Va.

Macdonald, A. E., M. D., Superintendent Manhattan State Hospital, East, Ward's Island, N. Y. (President.)

MacPhail, Andrew, M. D., Pathologist Protestant Hospital for the Insane, Montreal, Que.

Mayer, Edward E., M. D., Neurologist Presbyterian Hospital, 524 Penn Ave., Pittsburg, Pa.

McBride, James H., M. D., Medical Director Southern California Sanitarium for Nervous Diseases, Pasadena, Cal.

Mead, L. C., M. D., Superintendent South Dakota Hospital for the Insane, Yankton, S. Dak.

Meredith, H. B., M. D., Superintendent State Hospital for the Insane, Danville, Pa.

Mitchell, Thos. J., M. D., Superintendent State Insane Hospital, Asylum, Miss.

Nichols, John H., M. D., Superintendent State Hospital, Tewksbury, Mass.

Noble, Alfred I., M. D., Assistant Superintendent Worcester Insane Hospital, Worcester, Mass.

Page, Chas. W., M. D., Medical Superintendent Danvers Insane Hospital, Hathorne, Mass.

Palmer, H. L., M. D., Superintendent Utica State Hospital, Utica, N. Y.

Perry, Middleton L., M. D., Superintendent State Hospital for Epileptics, Parsons, Kans.

Pilgrim, Chas. W., M. D., Medical Superintendent Hudson River State Hospital, Poughkeepsie, N. Y.

Powell, Theophilus O., M. D., Superintendent Georgia State Sanitarium, Milledgeville, Ga.

Punton, John, M. D., Superintendent Private Sanitarium, Kansas City, Mo.

Redwine, J. S., M. D., Medical Superintendent Eastern Kentucky Asylum for the Insane, Lexington, Ky.

Riggs, C. Eugene, M. D., Professor of Nervous and Mental Diseases, University of Minnesota, St. Paul, Minn.

Robinson, J. F., M. D., Superintendent State Hospital, No. 3, Nevada, Mo.

Rogers, Jos. G., M. D., Medical Superintendent Northern Indiana Hospital, Longcliff, Logansport, Ind.

Russell, Wm. L., M. D., Medical Inspector of Institutions for the Insane, State Commission in Lunacy, Albany, N. Y. (Associate.)

Scribner, Ernest V., M. D., Medical Superintendent Worcester Insane Asylum, Worcester, Mass.

Searl, W. A., M. D., Superintendent Fair Oaks Villa, Cuyahoga Falls, Ohio.

Sprague, Geo. P., M. D., Proprietor and Superintendent High Oaks Sanatorium, Lexington, Ky.

Smith, G. A., M. D., Superintendent Manhattan State Hospital at Central Islip, Central Islip, N. Y.

Smith, S. E., M. D., Medical Superintendent Eastern Indiana Hospital for the Insane, Richmond, Ind.

Stedman, Henry R., M. D., Medical Superintendent "Bournewood," Private Hospital for Mental Diseases; also Trustee Taunton Insane Hospital, Brookline, Mass.

Tomlinson, H. A., M. D., Superintendent St. Peter State Hospital, St. Peter, Minn.

Turner, John A., M. D., Superintendent North Texas Hospital for the Insane, Terrell, Tex.

Tuttle, Geo. T., M. D., Medical Superintendent McLean Hospital, Waverley, Mass.

Voldeng, M. N., M. D., Superintendent Cherokee State Hospital, Cherokee, Ia.

Wade, J. Percy, M. D., Medical Superintendent Maryland Hospital for the Insane, Catonsville, Md.

Wagner, Chas. G., M. D., Superintendent Binghamton State Hospital, Binghamton, N. Y.

Wentworth, Lowell F., M. D., Deputy Executive Officer State Board of Insanity, 36 State House, Boston, Mass.

Wherry, J. W., M. D., Assistant Physician Clarinda State Hospital, Clarinda, Ia. (Associate.)

White, M. J., M. D., Medical Superintendent Milwaukee Hospital for the Insane, Wauwatosa, Wis.

Wilsey, O. J., M. D., Physician-in-Charge Long Island Home, Amityville, L. I., N. Y.

Witte, Max E., M. D., Superintendent Clarinda State Hospital, Clarinda, Ia.

Woodbury, Chas. E., M. D., Superintendent Massachusetts Hospital for Dipsomaniacs and Inebriates, Foxborough, Mass.

Woodson, C. R., M. D., Superintendent State Hospital No. 2, St. Joseph, Mo.

Work, Hubert, M. D., Superintendent Woodcroft Hospital, Pueblo, Colo.

Worsham, B. M., M. D., Superintendent State Insane Asylum, Austin, Tex.

Visitors and guests of the Association were as follows:

Allen, M. N., Esq., Commissioner Central Kentucky Asylum for the Insane, Louisville, Ky.

Applegate, C. F., M. D., Superintendent Mt. Pleasant State Hospital, Mt. Pleasant, Ia.

Braid, Milton, M. D., Superintendent Western Kentucky Asylum for the Insane, Hopkinsville, Ky.

Dockery, Hon. A. M., Governor of Missouri.

Guest, Jas. W., M. D., Member Board of Trustees, Central Kentucky Asylum for the Insane, Lakeland, Ky.

Hopkinson, Samuel W., Esq., Trustee Danvers Insane Hospital, Bradford, Mass.

Keith, Frank L., M. D., Superintendent State Hospital No. 4, Farmington, Mo.

Laughlin, C. E., M. D., Medical Superintendent Southern Indiana Hospital for the Insane, Evansville, Ind.

Moore, Wm. G., M. D., President Missouri State Medical Society, St. Louis, Mo.

Rand, Mrs. A. L., Trustee Medfield Insane Asylum, Harding, Mass.

Simon, John H., M. D., Health Commissioner, St. Louis, Mo.

Tiedmann, Ernest F., M. D., Professor of Pathology and Bacteriology, Washington University, St. Louis, Mo.

Uhls, L. L., M. D., Superintendent Osawatomie State Hospital, Osawatomie, Kans.

Williams, Berthold A., M. D., Senior Resident Physician Cincinnati Sanitarium, Cincinnati, Ohio.

The Association reconvened at 11:15. Dr. Powell, Vice-President, in the Chair.

The Presidential address by Dr. A. E. Macdonald was then delivered.

Dr. Burr: I move that we give the President a vote of thanks for his address and express our appreciation of his courage in coming in spite of illness, and our great gratification that he is able to preside at this meeting.

Carried unanimously by a rising vote.

The President: I am extremely indebted to you and can only ask that you will regard these desultory notes somewhat

in the light of despatches such as we read every day from another source, which have the standard head-line "Delayed in Transmission;" which are to be elaborated later; and for which you, like another deliberative body, will grant "leave to print."

[Note.—The President's address in full will be found at end of volume.]

Adjourned.

TUESDAY, MAY 31, 1904.

The meeting was called to order by the President at 10 a. m.

On motion of Dr. Edwards the Secretary was instructed to cast the ballot of the Association for the candidates recommended for membership yesterday by the Council.

The Secretary announced that the ballot had been cast and the candidates were declared duly elected.

The following report was received from the Nominating Committee:

The Nominating Committee respectfully recommends that the following gentlemen be elected to the several positions designated:

For President: Dr. T. J. W. Burgess, of Montreal, Que.

For Vice-President: Dr. C. B. Burr, of Flint, Mich.

For Secretary and Treasurer: Dr. E. C. Dent, of New York, N. Y.

For Councilors: Dr. B. D. Evans, of Morris Plains, N. J.; Dr. C. R. Woodson, of St. Joseph, Mo.; Dr. E. V. Scribner, of Worcester, Mass.; Dr. J. S. Turner, of Terrell, Tex.

For Auditors: Dr. A. B. Howard, of Cleveland, Ohio; Dr. A. F. Kilbourne, of Rochester, Minn.

Delegate to Congress of American Physicians and Surgeons: Dr. A. E. Macdonald, of New York; alternate, Dr. E. N. Brush, of Towson, Md.

Respectfully submitted,

J. PERCY WADE,
WM. M. EDWARDS,
W. A. GORDON.

The President: You have heard the report of the Nominating Committee. What is your pleasure regarding it? It is within the province of the Association to order in what way the election shall be held.

On motion the Secretary was instructed to cast the ballot for the officers nominated and they were declared duly elected to the several positions.

Dr. Burr: It may be in order to announce that with the exception of the President and Vice-President, the officers elected, Secretary-Treasurer, Councilors, Auditors, and all others, take office immediately.

The annual address to the Association under the title of "A Review of the Growth of Knowledge of Relations of the Mind and Nervous System," was then read by Professor Chas. G. Chaddock, of St. Louis.

Dr. C. G. Hill: I move that the Association extend a vote of thanks to Dr. Chaddock for his very able address.

Dr. Burr: We have rediscovered this morning if not that there is indeed no new thing under the sun, that at least much of the so-called new is old. The Association has listened in the past to many excellent addresses but I am sure to none with greater interest or appreciation than this of Dr. Chaddock. I most heartily support the motion of Dr. Hill.

The motion of Dr. Hill was carried by a rising vote.

The President: Professor Chaddock, I take great pleasure in extending the thanks of this Association to you for your address.

PAPERS.

The following papers were presented:

"Paranoia—Especially with Reference to its Definition and its So-Called Acute Form." Chas. K. Mills, M. D., Philadelphia, Pa. Read by title.

"A Medico-Legal Case of Well-Poisoning—With a Plea for a Hospital Observation Law." Henry R. Stedman, M. D., Brookline, Mass.

"Two Border-Line Cases." C. Eugene Riggs, M. D., St. Paul, Minn.

"A Consideration of the General Conditions Associated with Insanity and Their Connotations, Statistically and Otherwise." H. A. Tomlinson, M. D., St. Peter, Minn.

"The Relative Importance of Predisposing and So-Called Exciting Causes in the Etiology of Mental Disease." Carlos F. MacDonald, M. D., New York, N. Y. Read by title.

The Secretary read the following report:

REPORT OF THE BOARD OF EDITORS OF THE AMERICAN JOURNAL OF
INSANITY.

To The American Medico-Psychological Association.—Gentlemen:
In behalf of the Editorial Board of the AMERICAN JOURNAL OF INSANITY, I present herewith a statement of the operations of the Journal during the past year, together with vouchers, with the request that they be referred to the Auditors.

It will be noted that, owing to a falling off in advertising and an increase in the cost of production of the Journal, there is a temporary deficit of about \$60.00. This, however, is more than offset by advertising which is due, and subscriptions also which are due the Journal. The issue of the Journal during the past year has been somewhat interfered with by local reasons in Baltimore. Our printing office has been burned out once, necessitating the resetting of a large portion of one number. A second fire destroyed illustrations for another number and postponed its issue.

During the year the Editors have been confronted with a great excess of material, more especially in the form of scientific memoirs and papers of great value. To publish them it has been necessary to increase the size of the numbers very much beyond what has been deemed wise, and in several instances to publish papers in installments. The suggestion has been made that the Association should provide for the publication of one scientific memoir each year in the form of a by-volume or supplement to the Journal. During the past year three such papers have appeared in the Journal. One of them, that of Dr. Adolph Meyer, was a monograph of 68 pages; another, by Drs. Clark and Prout, will occupy about 74 pages. The paper of Dr. Folin has occupied 33 pages, and will require about as many more. I would urge that authority be given to the Board of Editors to provide for the publication of such monographs at a cost not to exceed a definite sum each year, this sum to be fixed by the Council annually, in accordance with the financial condition of the Association.

Very truly yours,

HENRY M. HURD, *Managing Editor.*

The President: If there is no objection, the report of the Editors of the American Journal of Insanity will be referred to the Auditing Committee elected this morning. The same disposition will be made of the report of the Treasurer which, owing to absence of those officers, could not be done yesterday.
Adjourned.

WEDNESDAY, JUNE 1, 1904.

The meeting was called to order by the President at 10 a. m.
The following papers were read:

"A Case of Sleep-Talking." D. R. Burrell, M. D., Canandaigua, N. Y.

"The Epileptic Child: Its Treatment and Care." W. P. Spratling, M. D., Sonyea, N. Y. Read by title.

"Case of Malingery." Chas. G. Wagner, M. D., Binghamton, N. Y.

"The Need for Careful and Exhaustive Scientific Study of So-Called Mental Epilepsy." Dwight S. Moore, M. D., Jamestown, N. Dak. Read by title.

"The Mental Conditions Occurring in Cretinism." Edward E. Mayer, M. D., Pittsburg, Pa.

"Organic Dementia with Abstract of Fifty-eight Cases." J. M. Keniston, M. D., Hartford, Conn. Read by title.

"Are the Insane Responsible for Criminal Acts." John Punton, M. D., Kansas City, Mo. Discussed by Drs. Geo. P. Sprague, H. A. Tomlinson, Richard Dewey, Chas. G. Wagner, A. E. Macdonald, Chas. H. Hughes, F. W. Langdon, and by Dr. Punton in closing.

Dr. Langdon: One thing impressed me in regard to this admirable paper on a subject which has not received the attention which it deserves and that is that we should take some action formulating the conclusions of this body on this important subject. I would suggest that a set of resolutions be framed so as to embody them and that they be brought before the legal profession. I would move the appointment of a committee to frame them and I would also move that Dr. Punton be made chairman of that committee.

Motion adopted.

The following papers were read:

"Intra-Cranial Tumors in the Insane, with a Report of Two Cases." I. H. Neff, M. D., Pontiac, Mich. Read by title.

"Hydrotherapy." Geo. T. Tuttle, M. D., Waverley, Mass.

"A Remarkable Case of Degenerative Insanity of the Moral Type." Henry R. Stedman, Brookline, Mass.

Adjourned.

THURSDAY, JUNE 2, 1904.

The Association was called to order by President Macdonald at 10 a. m.

The Council reported that Dr. Henry M. Hurd had offered his resignation from the editorial staff of the American Journal of Insanity; that it had tendered him the position of advisory editor, and that he had accepted such position.

The President announced the appointments of Dr. Richard Dewey, Dr. Nelson H. Beemer, and Dr. J. C. Clark, as the Committee on Resolutions.

REPORT OF AUDITING COMMITTEE.

Dr. A. B. Howard for the Auditing Committee presented the following report:

The Auditing Committee would report that it has examined the books and vouchers of the Treasurer and of the Editors of the AMERICAN JOURNAL OF INSANITY, and has found them correct.

A. B. HOWARD,
A. F. KILBOURNE,
Auditors.

On motion the report was accepted and placed on file.

The following papers were read:

"A Case of Hysteria with Unusual Symptom Complex." (Loss of Identity, Reversed Writing, Homosexuality, Migraine, and Systematized Delusions.) Richard Dewey, M. D., Wauwatosa, Wis.

Dr. Dewey prefaced his paper by the following remarks:

The case which I am going to present to you this morning is one which is in an incomplete condition, the patient being still far from recovered but having features of a somewhat unusual character. I believed that it might be of interest to give some of the clinical facts of the case.

"The Mental Results of Abdomino-Pelvic Operations in Insane Women." W. P. Manton, M. D., Detroit, Mich. Read by title.

"Reconciliation of the Disparity between Hospital and Asylum Trained Nurses." C. P. Bancroft, M. D., Concord, N. H. Discussed by Drs. Tomlinson, Hughes, Kilbourne, and by Dr. Bancroft in closing.

"A Review of the Recoveries of the St. Lawrence State Hospital in the Year, 1894." R. H. Hutchings, M. D., Ogdensburg, N. Y. Read by title.

"A Few Remarks about Observation Hospitals and Wards."

E. Stanley Abbot, M. D., Waverley, Mass. Read by Geo. T. Tuttle, M. D., Waverley, Mass.

"The German Psychiatric Clinics." E. N. Brush, M. D., Towson, Md. Read by title.

"Extension of Tent Treatment to Additional Classes of the Insane." C. Floyd Haviland, M. D., and Chester Lee Carlisle, M. D., Ward's Island, N. Y. Read by Wm. L. Russell, M. D., Inspector for the Commission in Lunacy, Albany, N. Y. Discussed by Drs. C. B. Burr, J. C. Clark, the President, and Dr. C. H. Hughes in closing.

"A Plea for the Voluntary Admission of Certain Types of Insanity in Institutions for the Insane." James Russell, M. D., Hamilton, Ont. Read by title.

"The Variations of the Psychic Equivalent." F. Savary Pearce, M. D., Philadelphia, Pa. Read by title.

"Suicide and Insanity." Gershom H. Hill, M. D., Des Moines, Ia. Read by title.

"Notes on Hallucinations." William A. White, M. D., Washington, D. C.

"Review of Some of the Recent Blood Stains with Demonstrations." (Demonstration by tests and microscopic slides.) Geo. C. Crandall, M. D., St. Louis, Mo. Discussed by Drs. C. H. Hughes, and C. B. Burr.

"Amnesia Clinically and Diagnostically Considered." Chas. H. Hughes, M. D., St. Louis, Mo.

"Characteristics of the Scotch Lunacy System." Owen Copp, M. D., Boston, Mass. Read by title.

FRIDAY, JUNE 3, 1904.

The meeting was called to order by the President at 10 a. m.

The President: I call for the Report of the Council as to time and place of next meeting.

The Secretary: The Council has to report that it has selected San Antonio, Texas, as the place of the next meeting, the time to be between the 15th of April and the first of June. The Committee of Arrangements, consisting of Dr. Jno. S. Turner, Dr. B. M. Worsham, and Dr. M. L. Graves, is to decide upon the exact time.

The President: Dr. Edwards, who was chosen as delegate to the meeting of the British Medico-Psychological Association last year, will please make his report.

Dr. Edwards: Through the great courtesy of this Association I was sent as delegate to the British Medico-Psychological Association at its meeting in London last year. I arrived in London in due time, as I expected, a week before the meeting. However, I found that the officers of the British Medico Psychological Association exercise the same prerogatives that those of this Association do, namely that the Secretary changes the time of meeting. This had been done, so that the meeting closed upon the day of my arrival in London. I visited Dr. Jones at Claybury and I bear his greetings to our President and the members of this Association. I visited a number of institutions in England and Scotland and from their superintendents bring the very best wishes for the success of this meeting.

On motion the report was accepted and placed on file.

The President: I call for the report of the Committee on Resolutions.

Dr. Dewey: Mr. President, members of the Association: Your Committee on Resolutions desire to express their appreciation of the comfortable and convenient arrangements for our session and the hospitality shown, so far as opportunity was possible in view of the paramount attractions of the World's Fair.

RICHARD DEWEY,
N. H. BEEMER,
J. C. CLARK.

The report was accepted and adopted.

Dr. Burr: I would move that Dr. James Russell of Hamilton, Ont., be elected a delegate to represent the Association this year at the meeting of the British Medico-Psychological Association.

The motion prevailed.

Dr. Punton: In regard to the committee so kindly suggested by Dr. Langdon to prepare resolutions on the substance of my paper, I would be very glad to be relieved of the chairmanship of that committee, with your consent.

The President: You have heard the request of Dr. Punton

to be relieved from the chairmanship of this committee. A motion is in order that the matter be reconsidered in accordance with his request.

Dr. Burr: I move that the appointment of this committee be reconsidered, and that Dr. Punton's request be complied with.

Motion carried.

Dr. Burr: I move that the appointment of this Committee be left with the President.

Motion carried.

The President: I understand that this is left with the incoming President.

Dr. Coe: I wish to say, as most of you know, that Portland, Oregon, was an applicant for the next meeting place of the American Medico-Psychological Association, but that we are glad that it is going to San Antonio. I wish to thank you for the kind words which many of you have spoken to me regarding Portland and to say that so long as you are going so far west, you might as well get your tickets through to Portland and I shall be glad to entertain you personally. We will show you a great country, with great forests, and mountains and rivers, and scenery that is unsurpassed. We will have also the Lewis and Clark Exposition which while it will not compare with the Louisiana Purchase Exposition will be a notable event and worth seeing. I assure you that I shall be glad to see you there and will do what I can for you if you will let me. (Applause.)

The President: The Association thanks Dr. Coe for his invitation.

Dr. Graves: I wish to thank the Association for the selection of San Antonio as the next meeting place, and I desire to say to you that we will do everything in our power to make your stay there pleasant.

Memorial notices were then read by title as follows:

Geo. W. Foster, M. D., by I. W. Blackburn, M. D.

A. B. Richardson, M. D., by Henry A. Tobey, M. D.

Orpheus Everts, M. D., by F. W. Langdon, M. D.

John B. Murphy, M. D., by R. W. Bruce Smith, M. D.

Edward C. Runge, M. D., by Frank R. Fry, M. D.

Eli E. Josselyn, M. D., by E. N. Brush, M. D.

The President: Nothing remains for me now other than to vacate my office. I appoint Dr. Tuttle and Dr. Mead to conduct Dr. Burgess to the Chair.

President Macdonald: Members of the Association: It gives me very great pleasure to introduce to you my successor and your President for the coming year. Dr. Burgess, I wish you in your new office happiness and success, which I also predict, and I no less predict satisfaction and pleasure to this Association under your Presidency.

Dr. Burgess: I am indebted to you for the greatness thrust upon me. I only wish that I were more worthy of it and that I could find words to express the gratitude I feel for the honor the Association has conferred upon me. I cannot hope to equal my predecessors, all of whom have been men whose names are well known in psychiatry, but I promise that I will do my best in fulfilling the duties to the satisfaction of the Association, and in making the San Antonio meeting as successful as those in the past. I thank you indeed most heartily for the honor you have conferred upon me.

President Macdonald: I ask the Association's indulgence for a violation of the rules in returning to the office of President for a moment and beg to upset another precedent which has, so the retiring Secretary tells me, been followed for a great many years. He tells me that it is not proper to introduce the Vice-President, but I am going to do so in spite of his protest. Dr. Burr needs no introduction. He has as Secretary found his way to the desk so often that we began to wonder if he could ever find his way away from it. He needs nobody to conduct him. Will Dr. Burr please come to the platform?

Dr. Burr: I appreciate this honor very much. I have enjoyed the work of Secretary which you have placed upon me for several years and retire from the office with some regret. It would be with unmixed regret except for the fact that after routine has been carried on for years, things begin to grind a little, and to grow a wee bit irksome. I have enjoyed the work in the main and have attempted to carry it on in a way which would merit your approval. I retire from the office gratefully appreciative of the confidence which you

have placed in me for so many years and shall seek to serve you well in the honorable office to which you have elected me. I shall hope to see you all the next year, shall hope that there will be a large attendance at San Antonio. The members from Texas have expressed a great desire for us to go there and extend to us the old-time Southern hospitality. I hope every member will strain a point to go. I thank you heartily for this new expression of your confidence. (Applause.)

Dr. Pilgrim: Before adjournment, I move that a vote of thanks be extended to Dr. Macdonald for the very able manner in which he has conducted this meeting.

Dr. Burgess: You have heard the motion to thank the retiring President, Dr. Macdonald. Thanks are especially due him in view of the fact that suffering from ill health he has come here and contributed his large part to this successful meeting.

Carried unanimously.

Dr. Burgess: On behalf of the Association, I extend to you with much pleasure this vote of thanks.

Gentlemen: There being no further business to come before this Association to-day, I declare the meeting adjourned until we gather together at San Antonio. I only hope, as Dr. Burr has said, that there will be a large meeting there. I am sure you will be heartily welcomed. You have heard of a Virginia welcome, and I am sure that you will find a Texas welcome equal to it at the coming meeting, and if we go there we will have a very, very good time. The meeting now stands adjourned.

E. C. DENT,
Secretary.

ANNUAL ADDRESS.

REVIEW OF THE GROWTH OF KNOWLEDGE OF THE RELATIONS OF THE MIND AND NERVOUS SYSTEM.

*Charles Gilbert Chaddock, M. D.,
Professor of Diseases of the Nervous System St. Louis University,
St. Louis, Mo.*

When the invitation to deliver the annual address before the Association at this meeting came to me from the Secretary, an unfamiliar feeling of confidence in myself was engendered by the proof that others had enough faith in me to risk my acceptance of so great a responsibility. Looking back now at the moment of rashness when I did accept it, I realize how pitifully weak I was in yielding to the first glow of pleasure felt at receiving the invitation. Many times since then I have had cause to regret my temerity; for with nothing new to offer you, I find myself forced into the role of an interpreter. If you will kindly bear with me in that capacity, I shall appreciate your indulgence as I do the honor accorded me.

In these days of rapid advance in science we are so busy trying to keep pace with actualities that we rarely have time to review the past. Perhaps, too, we feel so convinced of our scientific superiority or of the pre-eminence of our age, that we are little inclined to note the successive steps by which knowledge of the relations of the mind and nervous system has advanced to its present state. For this reason I have chosen to lead you over a traveled road—to review something so old that it may claim the interest of novelty.

History, when a mere chronicle of events, opinions, and men, has no real value; we must make it our guide in interpreting the present and forecasting the future. One of its most valuable lessons is its overwhelming demonstration of the inherent tendency of the human mind to confound error and truth. Scientists, more than all others, need to ponder this fact. The real progress of the world depends upon the growth and diffusion of exact knowledge. Scientists themselves have often placed almost insurmountable obstacles on the pathway of progress. Aside from superstition and all that engenders and nourishes it, the greatest obstacle that humanity has had to encounter in its toilsome march towards truth and freedom, is traditional authority crowned by the halo of a great man's name. Recall the shattered convictions and opinions that mark the long pathway of human progress, and be not too dogmatic nor over-intolerant of ideas that contradict your own. To-day the judicious mind accepts no man's name as the demonstration of the truth of an idea, theory, or conclusion. As Soury has said, "Science is larger than the brain of any man. Science is not, it becomes."¹ This is one reason why science appeals so little to humanity in general; man longs for completeness, for a rounded and finished whole, for something to satisfy the emotional side of his nature. This is found in art, in literature, in religion. The great scientists of all ages were also human; they often were as weak as those they deemed weak from ignorance. There is no real difference between the longing of the scientific mind to evolve a theory of the cosmogony, and the acceptance of some supernatural explanation of the universe that theoretically solves all the problems of life and reconciles us with death.

Even in a brief review of the growth of knowledge of the relations of the nervous system and the mind, we may possibly find reason to be modestly cautious in contrasting our knowledge with that of the ancients and our more immediate predecessors.

To one looking backward over the rugged landscape of history, the great names rise up like isolated peaks, shining bright and rosy as if to foretell the dawn; the shadows cast we do not see. The greatest contrast between the past and

present is the change that has come in the intellectual level on which humanity progresses. Now there are so many contributors to the advancement of science, and all workers are so intimately inter-obligated that the light of originality loses individuality and becomes diffuse, thus dissipating shadows by its all-pervading light.

The immortal Pinel, in 1809, wrote: "But it seems in general that the primitive seat of this alienation (mania) is in the stomach and intestines, and that it is from this center, by a kind of radiation, the disorder of the understanding is propagated."² Esquirol wrote in 1838: "Insanity has not always its point of departure in the brain, but rather in the centers of sensibility placed in various parts of the body."³ Kant said in 1800: "I have called these diseases of the head, disorders of consciousness, just as disturbance of the will is called a disease of the heart. I have considered the phenomena of these maladies only in the soul, without any desire to discover their root, which lies properly speaking in the body, and which may very well have its principal seat in the digestive apparatus rather than in the brain." In letters written by Kant apropos of the dedication of Soemmering's work to the great philosopher of Koenigsberg, in which Soemmering succeeded to his own satisfaction in establishing that the mind had its seat in the fluid that fills the cavities of the brain, Kant accepted Soemmering's theory of the ventricular fluid as the common sensorium as the only tenable one. He remarks elsewhere that though the majority of human beings had the subjective sense of thinking in the head, the deduction was erroneous because it assumed that the cause of the sensation lies where it is experienced.

Kant and Soemmering were the last prominent advocates of a fluid of the body as the seat of the mind.

When we compare these ideas with those of antiquity we shall be struck with the fact that for more than 2,000 years, philosophy and reverence for traditional authority, equally with superstition, did little but retard the growth of knowledge of the brain and mind.

The Homeric poems seem in large part responsible for the perpetuation of primitive ideas of the nature and seat of the

mental faculties, as shown in the common metaphors of heart, heartiness, heartfelt, heartlessness, etc., as terms for mental qualities or states. We all know that exalted emotivity is subjectively accompanied by sensations in the abdomen and about the heart. We now see the reason for this ancient assumption, with Polybius, in the effect of cerebral excitement to alter the usually quiet activity of the heart and vascular system and respiration. This physiologic sensation is thus probably responsible for the early theory that the thoracic organs were the seat of desire, emotion, passion, thought. The diaphragm (phrenes) and heart, for some reason, appeared to be of equal importance, possibly because of the rhythmic movement of the diaphragm in respiration and its spasmodic action in emotional states. This accounts for the word phrenitis, still in quite general use as a designation for insanity, which in its primitive meaning signified disorder of the diaphragm.

It does not seem possible that the subjective sense one has of thought as taking place in the head, could be without influence in directing attention to the brain as the seat of mental activity; and it is not impossible that self-observation equally with anatomic knowledge gained in dissection and vivisection, led Alcmaeus to regard the brain as the seat of sensation and reason. A contemporary of Pythagoras, Alcmaeus lived in the fifth century B. C., and was, according to Galen, the first known investigator to resort to dissection and vivisection, and the first to regard the brain as the seat of the mind. It is worthy of note in passing that the theory of sleep promulgated by this ancient observer is maintained to-day: "Sleep is due to the retreat of blood into the veins (anemia); awakening, to its diffusion."

The ideas of Alcmaeus have come to us in part through the writings of Aristotle, who cites them only with a view to controvert them; and in this he succeeded completely, for his location of the mind in the heart and blood remained valid, in one form or another, almost to our own day.

The view of Alcmaeus of the brain as the organ of the mind must certainly have been much older than himself, though entertained by but few of his own day, if Aristotle is to be believed. It is remarkable that Alcmaeus regarded the brains

of all animals to be alike; that is, that they were all of the same fundamental nature, and that all that distinguished the human brain from that of lower animals was the greater development of intelligence. By this physiologist is found foreshadowed, if not stated, the recent theory of Flechsig concerning cortical centers of projection and centers of association.

Plato, following the school of Pythagoras, gives us a very clear statement of localizations of mental faculties. His division of the soul into three parts seems to be paralleled by our conventional and artificial division of the mind into intellect, feelings, and will, which we now properly regard only as aspects of psychic activity. Plato, in his philosophic division of the soul into faculties, doubtless was logically driven to find separate though associated seats for them. Plato placed the thinking soul (nous) in the head, the thymos, or executive soul (will), in the heart, and the sensitive soul in the liver. The liver for him was the center of sensations and desires; the heart was supposed to be the seat of the will (courage, initiative); the reasoning faculty lay in the brain. By Plato, the spinal cord is for the first time given a function. He considered it the connecting link between the three souls, and even as constituting, in a way, three mental localizations. The brain is not, as by Alcmaeus, considered the seat of perception. For example, sounds though passing by the ear and the brain, were perceived in the liver, and that through the medium of the blood vessels; for the nerves were confounded with the tendons, ligaments, etc.

Turning now to the father of medicine, we note the same triple division of the soul. Hippocrates, who placed the mind, or common sensorium, in the blood and heart, considered the brain to be a gland, an opinion for which he gives many scientific reasons. For example, on account of its great size and its consequent power to absorb and give forth humidity, the hair of the head grew long and was abundant.

The Hippocratists were well aware of the fact that injuries to the brain caused apoplexy, paralysis, loss of speech, delirium, insanity, etc., and even that hemiplegia was caused by contralateral cerebral lesions; but this clinical knowledge had no effect to alter the error of regarding the blood as the source

of intelligence. Yet we cannot blame them unless we blame likewise Willis and Descartes, who practically held this doctrine as propounded by Aristotle.

It seems strange at first thought that the wonderful work on the sacred disease (epilepsy), which was written by an immediate follower of Hippocrates and contemporary of Aristotle, probably by Polybius, has had so little effect upon knowledge of the brain and mind, and incidentally of disease; for in this treatise the mental and moral faculties are placed definitely in the brain, and epilepsy is regarded as a disease having nothing whatever to do with divine influence. It is worth while to give some of the ideas of this writer: "We think, understand, see, hear, through the brain; by it we recognize the beautiful and the ugly; evil and good; the agreeable and disagreeable; pleasure and pain. But if the brain be not healthy, either too hot or too cold, we are delirious or have fears and terrors and dreams and cares that torment us without reason. Upon whether the alteration of the brain depends on mucous or bile, the insane are calm, depressed, and anxious, or excited and violent. As for the diaphragm (phrenes) it has received its name by accident, for it has nothing to do with thought or intelligence, any more than the heart, though some maintain that we think by the heart, and that this organ is the seat of sorrow and care. It has nothing whatever to do with them. Doubtless the heart contracts, just as the diaphragm trembles and convulses in response to great joy or sorrow. But neither has anything to do with the mind; the brain alone is the organ or interpreter of intelligence."

There must be reasons to explain the lack of fecundity of such clear statements of facts. In the first place, there was no convincing proof that they were facts. The Aristotelian philosophy with the idea of the blood as the seat of the mind acquired the weight of authority. Authority prevails when two doctrines equally unproved are presented to us for consideration.

Aristotle was essentially a critic of the work of others; for it seems highly probable that the greater part of his writings were the result of his reading of physiologists and anatomists rather than the product of personal observation. He knew

nothing of the anatomy of mammalia except at second hand. For him the brain was merely a refrigerator to cool the blood, and it occupied only the anterior part of the head; the posterior portion of the cranium was hollow. The superior intelligence of man depended upon the fortunate combination of a large refrigerator and a powerful and very warm heart. Aristotle's conclusions about cerebral physiology were based upon a series of scientific arguments that leave nothing to be desired as far as logic goes. In the first place, he asserted, doubtless perpetuating an ancient scientific error, that the brain was absolutely insensible to mechanical stimulation. Again, with the exception of cephalopods, invertebrate animals had no brains; but invertebrate animals were sensitive, and therefore sensation must depend upon something besides the brain,—a conclusive argument against the assumption that the brain is the organ of sensation. The brain was absolutely devoid of blood; but all experiments showed that in animals that had blood only those parts of the organism were sensitive that were vascular, while those parts that were without blood vessels were insensitive. Study of the brain itself showed that it had no relation whatever with the organs of sense. Thus arguments based upon anatomy and prevalent physiology showed beyond all doubt that the heart was the central organ of sensation; and here Aristotle placed the common sensorium, which since his day has wandered far and wide in the organism.

In his study of mental phenomena, Aristotle was less liable to err from the very fact that they were studied as phenomena independent of a material basis; and here he displays that acuteness of thought and perspicacity in definition that has caused him to exercise so profound an influence upon philosophical thought through ages. Aristotle had a perfectly clear understanding of the nature of elementary anomalies of the senses and intellect. To him hallucinations and illusions were perfectly familiar and as clearly defined as by Esquirol, who receives the credit of having first clearly differentiated them. He describes illusions of memory so well that his definition yields nothing in clearness to Sully, and his observations on somnambulism might date from the nineteenth century. The

modern doctrine of neuropsychic degeneracy and its relation to genius is quite as clearly set forth by Aristotle as by the modern advocates of the theory enunciated by Morel and developed by a host of modern observers. Straton, one of the followers of Aristotle, makes this profound remark concerning sensibility: "It is not in the foot that we have pain when we hurt it, nor in the head when it is bumped, nor in the finger when we cut it. Our whole body is insensitive with the exception of that sovereign part (the organ of perception); it is there that the blow immediately develops the sensation which we call pain."

In the third century before our era Cleanthus reveals the beginning of the notion of psychic heredity when he says that "we are not only like our parents in body, but also in soul, in our passions, our characters, and manners, and in the disposition of our organs; therefore the body is the soul." To Herophilus and his great contemporary, Erasistratus, of the school of Alexandria, is due the honor of making the first real advance in actual knowledge of the brain and the nervous system. Their pre-eminence depends upon their work in dissection and vivisection of both men and animals. Herophilus distinguished sensory and motor nerves, although he did not definitely distinguish nerves from tendons. Erasistratus recognized the same differentiation of nerves into motor and sensory, and besides gave a most remarkable description of the brain itself; and he reached the conclusion that the superior intelligence of man depended upon the richness of his brain in convolutions. Strange to say, this fact, now universally recognized, was not accepted by the greatest of physicians, Galen.

In the French edition of the Institutes of Anatomy, by Bartolin, in my possession, bearing the date 1647, which contains an excellent description and demonstration of the circulation of the blood, by Walaeus, I read: "The external surface of the brain presents fissures, convolutions, and twists that resemble the intestines. It must not be concluded with Erasistratus that nature intended these to subserve reason, for asses as well as men have them; nor that they are to diminish the weight of the brain, as Aristotle would have us believe; nor that they do not serve any purpose, as some maintain; they

protect the blood vessels which pass in the depths of the fissures and thus the vessels run no risk of being broken by the continual movement of the brain, especially at the time of the full moon, when the brain swells decidedly in the cranium." This writer gives no credit to Galen for this remarkable argument with which he would annihilate the fact enunciated by Erasistratus, though Galen was its author.

This example of puerile reasoning should not prejudice us in our estimation of Galen's services to science. His teachings definitely placed the mental functions in the brain. Though he probably never dissected a human brain, he was thoroughly familiar with the macroscopic anatomy of the brain and spinal cord. His great knowledge of anatomy was practically exclusively derived from the dissection of animals, especially monkeys. A marble torso in the Vatican Museum, which probably antedates Galen, is an enduring monument to the fact that dissection of the human body could not be practiced during that age in Italy—the trunk of a man is represented with all the organs of a monkey in place.

In the brain itself, to Galen, the ventricles were of first importance, seemingly because he assumed that it was only by means of cavities and tubes that vital connections and communications could take place. Thus he gave much attention to study of the ventricles and their interconnections. To his mind, the *pneuma* entered by the nostrils, attained the lateral ventricles, passed downward to the fourth ventricle, and thence was distributed to the brain and throughout the body by the nerves. Lack of exact knowledge of the nerves only served to confirm the theory, for from the earliest times they had been regarded as tubes or conduits. For Galen, the function of the corpora quadrigemina was to regulate by variations of pressure the flow of the psychic *pneuma* or spirits through the *iter* (passage from the third to the fourth ventricle); the pineal gland is expressly proved to be non-nervous in structure and to have no functional relation to the brain. Galen was clearer sighted than Descartes. The serous secretion of the ventricles was regarded by Galen as an excretion which found its way downward into the nares and pharynx through the bones of the base of the skull; in this the pituitary

body had a function, as its name (mucons gland) indicates. It is interesting to remark in passing, as an example of the persistence of ancient errors in names, that the French speak of *rhume de cerveau* (cold in the brain) for coryza.

Galen conceived three theoretical forms of *pneuma* (psychic, vital, physical), and he translates them into, psychic force, sphygmie force, and physical force. Psychic force is the principle of intelligence, memory, and thought, which as we have seen, operates through the brain and nerves; but we still find mental qualities attached to the others: courage, anger, character reside in the sphygmie force, and sensual desires arise from physical force. Nowhere in Galen's writings is found anything to correspond with the idea of the common sensorium of Aristotle, a fact probably due to Galen's great desire for physical demonstration. Galen has the supreme merit of having continued and developed the experimental methods in anatomy and physiology of the school of Alexandria. To examine his masterly work in clinical description of diseases of the brain would take us too far; one example will suffice to show the correctness of Galen's knowledge of nervous anatomy and physiology. When the physicians asked in controversy how it was possible that movement could be retained with loss of sensibility, he replied: "Have we not sometimes seen the contrary, conservation of sensibility with loss of movement?" And in explanation he said: "All voluntary movements are executed by muscles. If the nerves going to muscles are affected, their movement is lost; but if the nerves affected are those distributed to the skin, it is the sense of touch that is implicated."

Of the contemporaries of Galen, Oribasius (325-400), physician to the Emperor Julian, with Plato, admitted the three seats of the soul and the three forces of Galen. Concerning delirium, mania, melancholia, phrenitis, lethargy, apoplexy, epilepsy, etc., regarding them as diseases of the first principle, he could only entertain the view that the lesions lay in the head, either uniquely and primarily, or secondarily through sympathy with some other parts. In his writings, we find the first reference to the physical stigmata of degeneracy: "In badly formed heads, the palate should be examined and it will

be found to be high-arched. In persons that present pointed obliquity (oxycephaly), in certain cases, it will be noted that the teeth do not correspond exactly; that is, that the superior and inferior teeth do not come together in a straight line, so that the mouth is drawn up and twisted. Such individuals, you will find, are subject continually to headache and inflammation of the ears."

Through the Middle Ages, from Galen to Descartes, nothing of great importance was added to practical knowledge of the brain. Here and there, as at the school of Salerno, certain new observations were made, but, in general, knowledge was only the interpretation or misinterpretation of the Greeks and Galen. Owing to the importance of the ventricles in the theories of Galen, it is not surprising that they became considered to be of great importance, though Galen himself regarded them only as the reservoir of psychic force which spread throughout the brain. This perhaps accounts for the fact that Avicenna localized the faculty of imagination and thought in the middle ventricle, memory in the posterior ventricle, and the common sensorium, including perception, in the anterior ventricle. Avicenna represents, perhaps, the highest development of medical science among the Arabs, but without doubt his knowledge was derived from the ancients and Galen, and it seems probable that the great renown in which Arabic medicine was held during the Middle Ages was due to the fact that the study of the earlier scientists among them was comparatively continuous, whereas in Europe it was interrupted. For this reason, too, the knowledge which came into Europe from the Arabs and was passed on by the early schools of medicine, was colored by the interpretations that had been put upon the writings of Hippocrates, Aristotle, and Galen by the Arabs. Thus; throughout the Middle Ages, we find scholastic interpretations and applications of the Aristotelian and Galenic ideas in relation to the mind and nervous system that show the Arabic influence.

The names of Sylvius, Vesalius, Varolius, Fallopius and Harvey mark the transition to modern observers; but none of these men, who left their marks in the history of knowledge of the human body, had anything more than a Galenic or Aristotelian

conception of the relations of the mind and nervous system. When Varolius described the ventricles of the brain and their secretions, he did nothing more than restate the theory of Galen, and his localization of mental functions is exactly that of his renowned predecessor.

The consummate anatomist and physiologist, Descartes, was necessarily occupied with the ever unanswered question of the nature and seat of the mind. His opinion may be cited as a good example of the state of the knowledge of his age: "The parts of the blood which attain the brain serve not only to nourish its substance, but principally to produce a certain very subtile wind, or rather a flame very bright and pure, which is called animal spirits. The arteries that bring blood from the heart, after dividing into an infinite number of small branches and forming a fine tissue net-work which is spread out like a carpet in the bottom of the cavities of the brain, again unite around a certain small gland placed near the middle of the substance of the brain at the entrance of the cavities, where they possess a large number of small holes through which the most subtile parts of the blood they contain enter the gland, but which are so small that the grosser parts of the blood cannot pass through them. The coarser parts pass on to give nourishment to the brain in general; the finer parts become animal spirits which pass from the small gland to the ventricles, thence to the brain and into the nerves, which are regarded as tubes. Thus they attain the muscles, having power to cause them to change their form." The conception of Descartes does not differ in its simplicity from the ideas of the ancient Greeks. The animal spirits are regarded as the essence upon which rest imagination, memory, judgment, sensation, and movement; and to derangements in the animal spirits are due affections of the nervous system, such as vertigo, apoplexy, convulsions, mania, etc. Descartes, notwithstanding his profound studies in anatomy, was so dominated by philosophy, that he was forced to find a common sensorium, and he finally hit upon the pineal gland as its seat. However, Descartes was not the first to regard this so-called gland as the seat of the soul, for others had enunciated this idea before him, and he was not without those who

opposed this localization and that most effectually. Spinoza, replying to Descartes' doctrine, says: "I cannot be sufficiently astonished that this philosopher, who had for a rule to draw no conclusions except from evident principles themselves, and to affirm nothing of which he had not a clear and distinct perception, and who so often reproached the scholastics with explaining obscure things by occult qualities, admits an hypothesis more occult than the occult itself. What does he understand, I ask, by the nature of the soul and body? What clear and distinct idea can he have of a thought closely united with a small portion of space?" Again in repudiation of the Cartesian philosophy he said: "There is not in the soul any absolute faculty of willing or not willing, but only particular volitions like this or that affirmation, this or that negation. The soul and understanding are one and the same thing. Ideas are not mute figures traced on a tablet. This prejudice prevents understanding of the fact that every idea, in that it is an idea, contains within itself its affirmation and its negation. There is not in the soul an absolute or free will, but the soul is determined in its choice of this or that by a cause, that cause by another, and that still by another, and so on to infinity. Will cannot be called free, but only necessary. Will is nothing but a certain way of thinking, like the understanding. Men think that they are free because they are conscious of their volitions and their desires, and because they do not think of the causes that dispose them to desire or to will."

Of modern investigators, Thomas Willis is one of the most remarkable, and he was the first, perhaps, to definitely regard the cortex of the brain as the seat of the mind, but by him were continued the theories of Descartes, in the sense that he conceived that the distillation of animal spirits took place in the cortex instead of in the pineal gland. In him Hughlings Jackson had his precursor; for Willis attributed great elasticity and explosiveness to the animal spirits, comparing them to powder in a cannon. For him the animal spirits after distillation in the cortex were distributed to the muscles by the nerves, and he attributed the spasmodic action which results in convulsions to explosion of spirits. After all, the theory of a nervous discharge and that of explosiveness of animal

spirits are practically the same; the names only are changed. Willis' understanding of hysteria was as good as that of some modern writers, for he says: "This presumed uterine affection is convulsive and depends principally upon alterations of the brain and nervous system. It is produced by explosions of animal spirits. The origin of this disease should be sought in affections of the brain such as might be due to fear, sorrow, or some other passion affecting especially the spirits of the brain. This convulsive, spasmodic diathesis, hysteria, is a disease observed not only in women but also in men."

When Proschaska, abandoning ancient terminology, substituted the term *vis nervosa* for animal spirits, at one stroke he placed the study of nervous phenomena upon a solid foundation. While this was apparently merely the substitution of one name for another, in reality it was a radical departure which dethroned a philosophic dogma that had so long handicapped scientific thought; for instead of explaining the inexplicable it gave a name to phenomena that belong to the nervous tissues by virtue of the fact that they have a distinctive structure. The *vis nervosa* became a name for that unknown something which we are logically forced to assume as the cause of phenomena that are manifestly the result of some form of force generated in and acting through the nervous system. Thus it became possible to study nervous activity in direct connection with the nervous system. From being an intermediary between the heart, blood, ventricular fluids, and animal spirits and the phenomena of life, the nervous system rose at one bound to its throne of vital supremacy. But if we owe to Proschaska this epoch-making change of base, it must be said that he did not have an understanding of its universal application. If he emancipated himself from earlier dogma through his study and comprehension of reflex action, he still felt himself constrained to regard psychic force (*vis psychica*) as something apart and above *vis nervosa*. For Proschaska, the common sensorium was the central nervous system in general, but the nervous system in itself was insufficient to engender intelligence—hence the need of the abstraction called psychic force or soul.

About 1750 some observations made by Baader may be taken

as the beginnings of modern cerebral localizations. From study of symptoms and cerebral lesions he concludes that, given a sufficient number of cases carefully studied clinically and at post-mortem, "We shall be able to know and predict what parts of the brain give sensibility and movement to this or that member, so that knowing the member affected we can determine what part of the brain is implicated; and inversely, given a distinct lesion of the brain, foretell what member must be affected." And after the study of some particular cases, Baader states that "perhaps we may conclude with certainty that the cerebral region beneath the parietal eminence controls the motility and sensibility of the upper extremity of the opposite side."

As we have seen, Sommering did not render such service to knowledge of the relations of the mind and brain as he did to nervous anatomy; the same is true of those celebrated anatomists, Vicq d'Azyr and Bichat.

In spite of the merited odium and ridicule into which the system of cerebral organology of Gall and Spurzheim has fallen, we should remember that knowledge of cerebral localizations owes more to Gall than to any one else. We cannot deny to Gall the signal merit of having by his surprising knowledge of cerebral anatomy and his erection of a false system, excited that interest in the study of the brain that has brought about such fruitful results in the last forty years. Bastian remarks that "nothing was known to them (Gall and Spurzheim) as to the real physiologic distinction existing between the gray and white substance of the cerebrum. The gray matter was by the founder of phrenology considered to have no proper nerve function at all."⁴ This statement needs refutation, for it is erroneous. Gall says expressly: "All nerves take their origin in the gray substance; in passing through it (the gray substance) they become intimately connected with it, and are reinforced by fibres from it." The ganglia and the gray matter in general were for Gall the trophic centers of nerves. Malpighi had a similar idea, but Gall went further and regarded the convolutions and the gray matter as the veritable seat or "organs of the intellectual faculties." "The convolutions must be recognized as the parts

where the instincts, sentiments, inclinations, talents, the affective qualities in general, and moral and intellectual forces, have their places of activity." This is practically a general statement of what is maintained to-day. If Gall went too far in theory, he certainly had very distinguished predecessors. On examining some casts of the heads of religious maniacs in Esquirol's collection he noted that the frontal eminences were remarkably high and exclaimed: "How all these heads differ from the flat head of the atheist Spinoza!" Gall reached the conclusion that the superior intelligence of man depended on the predominance in development of the frontal lobes of the brain; and this is the current doctrine both popularly and scientifically. Ferrier, Wundt, and Hitzig, to mention no others, regard the frontal lobes as the seat of understanding, attention, will; in other words, as the common sensorium. There are noted alienists in France who still speak of individuals as predominatingly occipitals, parietals, or frontals, meaning by these terms that sentiment, activity, or intelligence predominates in the character and is correlated to predominating development of a part of the brain. We must not wonder at Gall, when to-day we see Magnan defending his division of hereditary degenerates into spinals, spinal posterior-cerebrals, anterior-cerebrals, etc. It is Gall out-Galled. I have in my possession the hemisphere of a hardened brain kindly presented to me by the late Professor Luys in 1889, which displays a disproportionate prominence of the paracentral lobule. He informed me that during life the patient from whom it was taken had been extremely and persistently hallucinated, in what sense I do not now recall; and he impressed upon me by means of many other brains showing a similar peculiarity, that he was convinced that hallucination depended upon hypertrophy of the paracentral lobule.

Flourens, who said it seemed he had never seen a brain before, when he saw Gall dissect one for the first time, localized the mental functions in the cortex, but as is well known, he made all the parts of the cerebral surface of equal and interchangeable importance. Theoretical cerebral localizations were the object of Gall's system; unity of function, that of Flourens' theory. We find adherents of one or the other of these theories

in those of illustrious name throughout the nineteenth century—Magendie, Burdach, Legallois, Serres, Foville, Richrand, Desmonlins, Andral, Lelut, Bouillaud, Baillarger, etc.

The man to whom most credit is due, as having definitely established the cerebral cortex as the true seat and source of mentality, is Parchappe, the professor of Rouen, who stands alone in the middle of the nineteenth century as the true precursor of our ideas of to-day. It was by his study of general paralysis of the insane that he demonstrated his thesis beyond all doubt. For him all the mental functions had their seat in the cortex of the brain. He observed, in relation to mental disintegration in paralysis, that: "Intelligence is more readily affected than either will or sensibility; and the will in its motor aspect, more readily than sensibility. The understanding and the faculty of thought are lost before the faculty of movement, and especially before the faculty of feeling. In general paralysis at its extreme stage, the lesion of intelligence is more profound than that of movement, the common lesion of intelligence and movement is more profound than the lesion of sensibility; the latter is only abolished with voluntary movement when the whole thickness of the cortex is disorganized." Parchappe regarded the cortex as the common seat of intelligence, will, and sensibility, just as we now regard the central convolutions as the seat of sensation and motor innervation. It should be a source of pride and stimulation to alienists that they can justly point to the true founder of modern knowledge of the seat of the mind, as one who gained his distinction by attentive study of general paralysis of the insane, especially since, in general, the study of insanity is given so little credit for advancement of knowledge of the brain.

Vulpian, of controversial temperament, which he seems to have communicated to some of his pupils, sought to detract from the imperishable distinction of Broca, in his effort to show that Bouillaud had preceded him in his location of the motor center of language. Bouillaud's conception of the seat of language as lying in the frontal lobes was but a modification of Gall's location of speech.

With Broca's immortal discovery (1861) of the motor center

of language in the third left frontal convolution of the brain, the doctrine of cerebral localizations was impregnably established. But for its rapid enlargement the results of experimentation were needed, and it was not until 1870, when Fritsch and Hitzig demonstrated the excitability of the cerebral cortex to electric stimuli that the modern era of knowledge of the brain began; their experiments dissipated forever the ancient dogma of the inertness of the brain to mechanical stimuli.

I shall not take you further, for you are all familiar with the work of the last three decades, and well aware that controversies are still with us.

In conclusion, let us review the lot of the common sensorium—the place where the soul or ego is supposed to come into relation with the nervous mechanism. Aristotle placed it in the heart; scholastics placed it in the ventricles of the brain; Descartes found no place suitable but the pineal gland; Kant with some difficulty allowed Soemmering to prove it to be in the fluid of the ventricles; Gall induced his successors and many of our contemporaries to establish its seat in the frontal lobes, for Hitzig, after having made possible present knowledge of cerebral functions, goes not a step beyond Aristotle in placing it in the forebrain.

The common sensorium has had such a varied material existence since it was deemed necessary to find for it an abiding place, that we may well ask ourselves whether it has any at all. Possibly some day knowledge of facts will dethrone philosophic prejudices and place us at the clear point of view of Alcmaeus and Flechsig, whence the centers of projection and association will seem sufficient to explain all the phenomena known as mind.

¹ Soury, *Système Nerveux Central*, Paris, 1899, to which work the writer is indebted for almost all the quotations and references in the article.

² Pinel, *Traité Médico-Philosophique sur l'Aliénation Mentale*, 2ième Edition. Paris, 1809.

³ Esquirol, *Maladies Mentales*, Vol. 1, p. 113, Paris, 1838.

⁴ *The Brain as an Organ of Mind*, pp. 515-518.

EXTENSION OF TENT TREATMENT TO ADDITIONAL CLASSES OF THE INSANE.

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That tent life for the care and treatment of the tuberculous insane, as inaugurated by Dr. A. E. Macdonald, Superintendent of Manhattan State Hospital East, Ward's Island, New York City, has proven eminently beneficial, as shown in the very successful results of Camp A, there can now be no longer any room for doubt.

That the out-door tent life has too, a remarkable effect on the demented and uncleanly class is shown also in the awakened mental processes of these unfortunate patients as observed for the last three years in Camps B and C.

The cases so far mentioned are usually of the most dependent and helpless class. Physically, they are weak, many bedridden and all require constant nursing and attention. Mentally, their faculties are so enfeebled that they lack all initiative and spontaneity. Their power of attention is limited, their mental content that of the immediate present, their power of association faulty, their retention defective. What concepts they may have are defective, their preceptions obtuse, their ideation a tissue of vague delusions, long of the past, now fading as dementia advances. Their conversation is rambling and incoherent, their deductions fatuous and illogical, their demeanor sullen, apathetic or childishly elated, as the case may be. Many live lives of simple moria.

But another class of patients needs to be accounted for, when considering the effects of out-door life on the insane. These are the convalescents, those who are on the threshold of the outside world about ready to step back into their accus-

tomed avocations, and to resume once more an active life. In the "convalescent ward" of every hospital for the insane, they are observed taking an active part in the daily routine, assisting in the ward work, playing games, enjoying their reading matter, clean and neat in dress, and to the casual eye perfectly restored to health. The majority of such patients realize their past alienation and feeling that they have recovered, anxiously ask almost daily for their discharge. This request the physician finds it oftentimes most difficult to refuse, and harder still to frame a reply which will convince the patient that a further residence in the hospital is for his best interest. But the experienced alienist knows but too well that speedy recoveries with a too short period of convalescence very often find their sequel in a speedy re-admission with a recrudescence of all the former symptoms exaggerated and the prognosis rendered much more unfavorable.

It must be admitted that many "recoveries" are recoveries from a relative standpoint only, and are relative to more than one standard, from the standpoint of the exact alienist, from the standpoint of the eager statistician, or from the practical standpoint of the patient's visitors, whether relatives or business associates. So many extraneous reasons are there which come into play as pertinent factors in the recovery of the convalescent patient.

A critical examination of the recent convalescent, however, will usually discover several important symptoms both as to his mental and physical condition which, if overlooked or disregarded, may eventually result most disastrously for the patient. There is most often found a condition of slight apprehension, a slight reluctance to take up his former social status, an ill-defined fear that he is not all that he was. The condition may easily be mistaken for very mild depression, but it is not an exactly similar condition. At this stage of convalescence the patient is most subject to a return of impulsive acts and ideation with their characteristic demeanor. Other cases show a too eager desire to return to active life. They fail to realize the seriousness of their past illness, and have not a proper conception of their abilities as to the amount of mental and physical labor which they are capable of under-

taking. There still remains the type of convalescent who has recovered to all practical intents and purposes, who has no delusions or hallucinations, but who fails utterly to appreciate his past alienation.

It may be presumed that all these types have been residents of the hospital wards for at least two months, with the consequent restrictions as to out-door life and exercise inevitable to residence in a hospital ward, no matter how great the efforts toward extending the routine out-door exercises may be. Especially is this the case if the alienation occurs during the inclement winter months. It will be found that the patients have almost universally gained in weight, but their adipose tissue is apt to be flabby and their general musculature, while normal as to the amount, is deficient in tone as shown by the usual resistance tests. The classical haemoglobinometers, the lips and conjunctival mucous membranes, show that the blood, usually so impoverished at the time of the patient's admission, has not fully returned to the normal. There is anaemia, which is at times quite persistent, especially where the etiological factors are alcoholism and lues. The eastern, southeastern, and southern hospitals will also have to take the malarial cachexia into this consideration.

The physician sees these slight defects in the patient's physical condition. He is cognizant of the exact mental status, yet the patient is anxious to receive his discharge, and the patient's friends are daily and clamorously importuning the hospital authorities for his release, so that the physician must needs decide from either the standpoint of the exact alienist or from the "practical" standpoint whether or not the patient is able to resume active life once more. It is the "psychological" moment, which may make or mar the patient's whole future life. It was for such cases that the old system of parole was devised, but the objection to this system is that the patient comes into immediate and unrestrained contact with undesirable associates and at the same time feels that he is under the irksome quasi-jurisdiction of hospital authority.

It was to remedy these defects in the management of convalescent patients that the new tent system for convalescent patients was inaugurated June 1, 1903, and continued without

interruption through the summer and fall to December 1, 1903. Two large wall tents of 12 ounce duck, each 20x40 feet, were pitched on a gentle slope, having a declivity of approximately 1 to 25, thus affording most excellent drainage during the periods of wet weather. For the tent floors sectional platforms were constructed which were elevated one foot from the ground, all tall grass and underbrush being cleared away. The camp was sheltered on the western exposure by a high thick hedge, which also served to conceal the toilet, a wooden structure fitted with running water and the usual toilet appurtenances. The water pipes were connected with the permanent sewer.

In fair, warm weather the entire wall of each tent was raised both day and night. On cooler nights the tent walls were lowered, ample ventilation being afforded by means of the adjustable ventilators at each end of the tents.

To the south of the camp was situated the attendants' tent, and at the north end a tent was pitched for use as a store room for the camp game and other utensils when not in use.

The prevailing winds during the summer months have been the northeast and southeast winds. For this reason the tent pegs on the east side of the camp were made three feet long, which afforded a firm and solid anchorage for the tent ropes.

Each of the large tents accommodated twenty-two beds, there being forty-four patients in all. During the entire season there was not even an attempt at escape, the patients being grouped around the camp upon settees as soon as dusk set in. Every day the patients enjoyed out-door exercise, and as there were no bedridden patients in this camp, this included the entire population.

An improvement in the electric lighting of the camp was made by having bracket lamps substituted for the electric lights formerly used, which were suspended from the roof by cords. A bracket lamp was placed on each end pole of the tents, while the center pole was fitted with a three-branch electrolier. This arrangement afforded each tent five electric lights, four of which were of sixteen candle power each, and one light for use as a night light of one candle power.

In accordance with the practice of the hospital to afford all

possible means of out-door recreation for the patients, the camp was furnished with abundant facilities for croquet, golfette, baseball, football and tether-tennis, besides the usual "ward games" such as checkers, cards and dominoes. Magazines and daily papers were freely distributed so that each patient could find at hand the form of recreation most agreeably suited to his own inclinations.

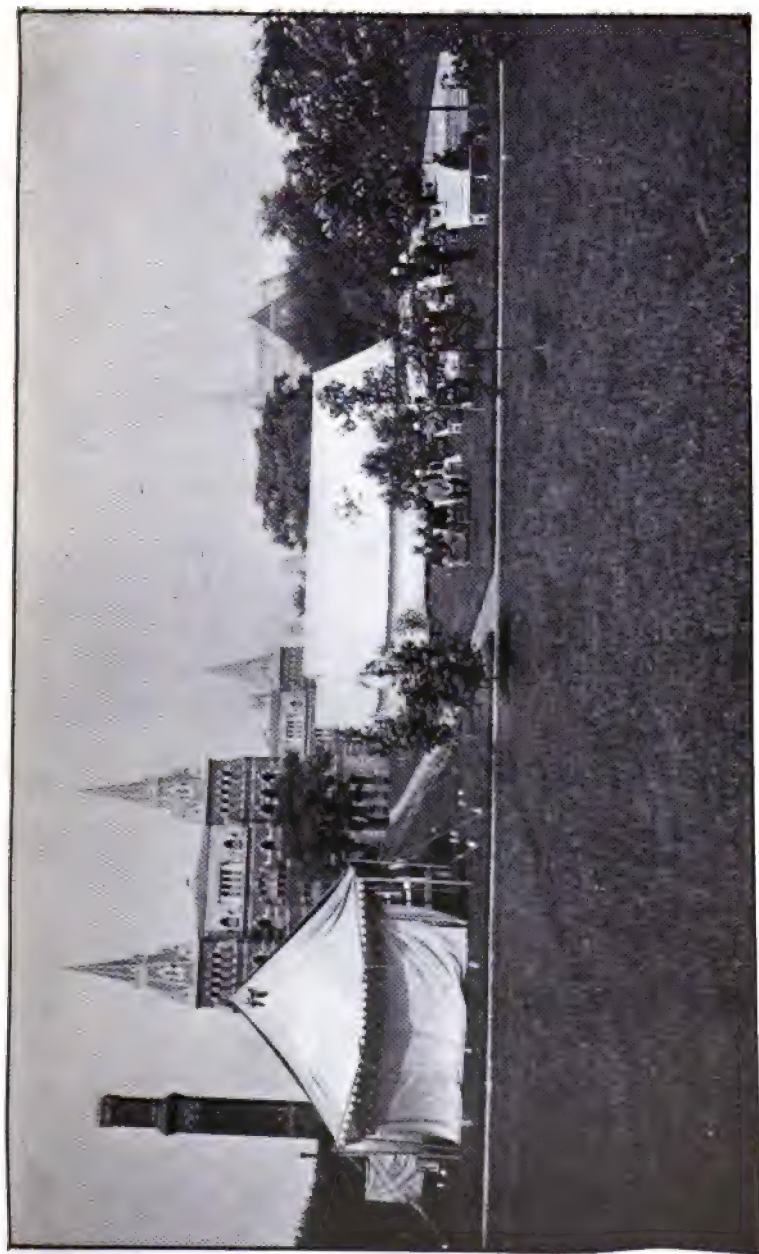
During the day the patients were all occupied, either in the tailor shop, shoe shop or printing office. The percentage employed to the total population of the camp being 100 per cent. Fifteen patients were employed in the shoe shop, fifteen in the tailor shop, and fourteen in the printing office.

It would have been an easy matter to fill this camp with cases which had a very favorable prognosis for recovery, and thus to have been able to return statistics for the period (June 1 to December 1, 1903), with probably 80 per cent recovered and discharged. But such a policy would not only have indicated a desire to produce spectacular statistics, but would have subverted the true sphere of the camp's usefulness.

Cases that showed an uninterrupted favorable course in convalescence were treated in the convalescent wards of the hospital as formerly. The cases which were selected for camp life were those which showed a retarded period of convalescence. The class of cases in which the prognosis is favorable as to ultimate improvement, but in which the duration of the convalescent period is unduly prolonged and subject to periods of partial retrogression and remissions. For this reason the statistics of Camp D do not show a sensational number of recoveries, but they do show a decided mental and physical improvement in the total population of the camp with three cases of retarded convalescence sufficiently improved to be discharged (7%), and at least 7 (16%) other cases improved sufficiently to warrant the expectation of their speedy discharge. All of these patients were types of those cases in which the prognosis for rapid convalescence was exceedingly unfavorable, and the outlook for the restoration of the patient's mental health very uncertain. The patient's lack of insight into his past alienation is the most prominent factor in their cases, which deters the physician from recommending the



MANHATTAN STATE HOSPITAL EAST. CAMP C.—FOR FEEBLE AND DECREPIT FEMALE PATIENTS.

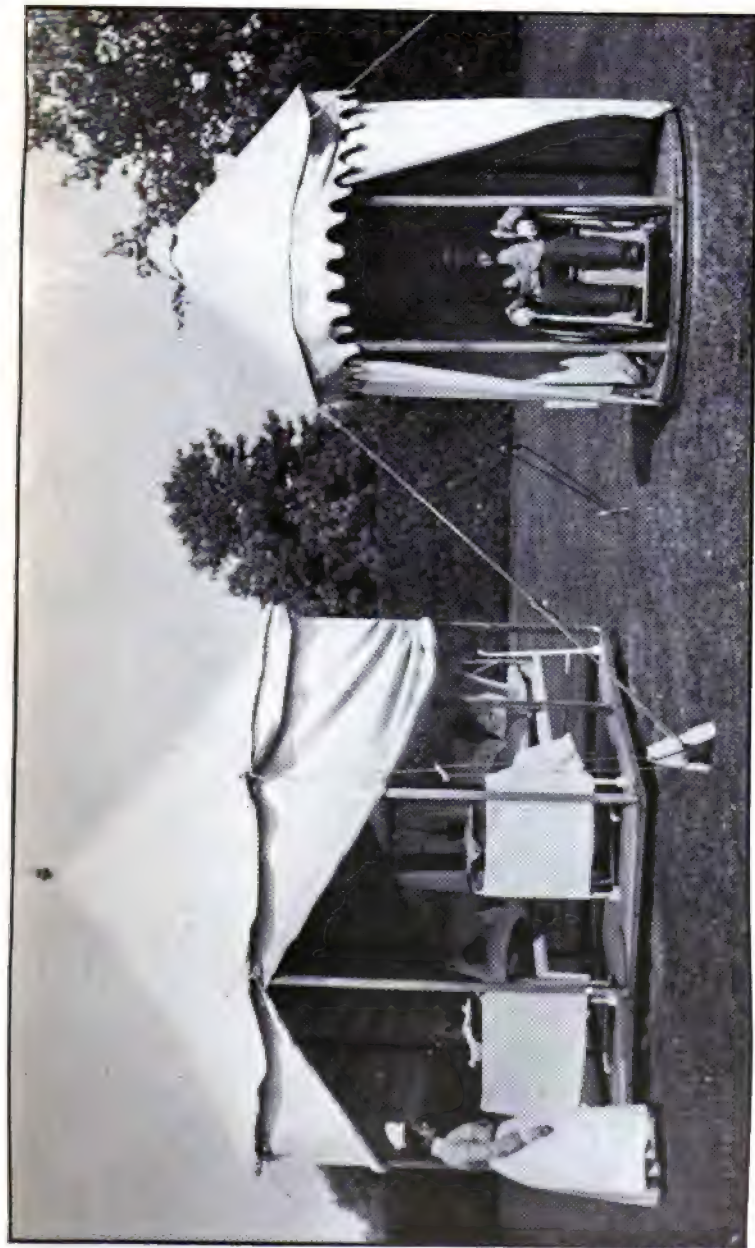


MANHATTAN STATE HOSPITAL EAST. CAMP D.—FOR SHOP WORKERS.

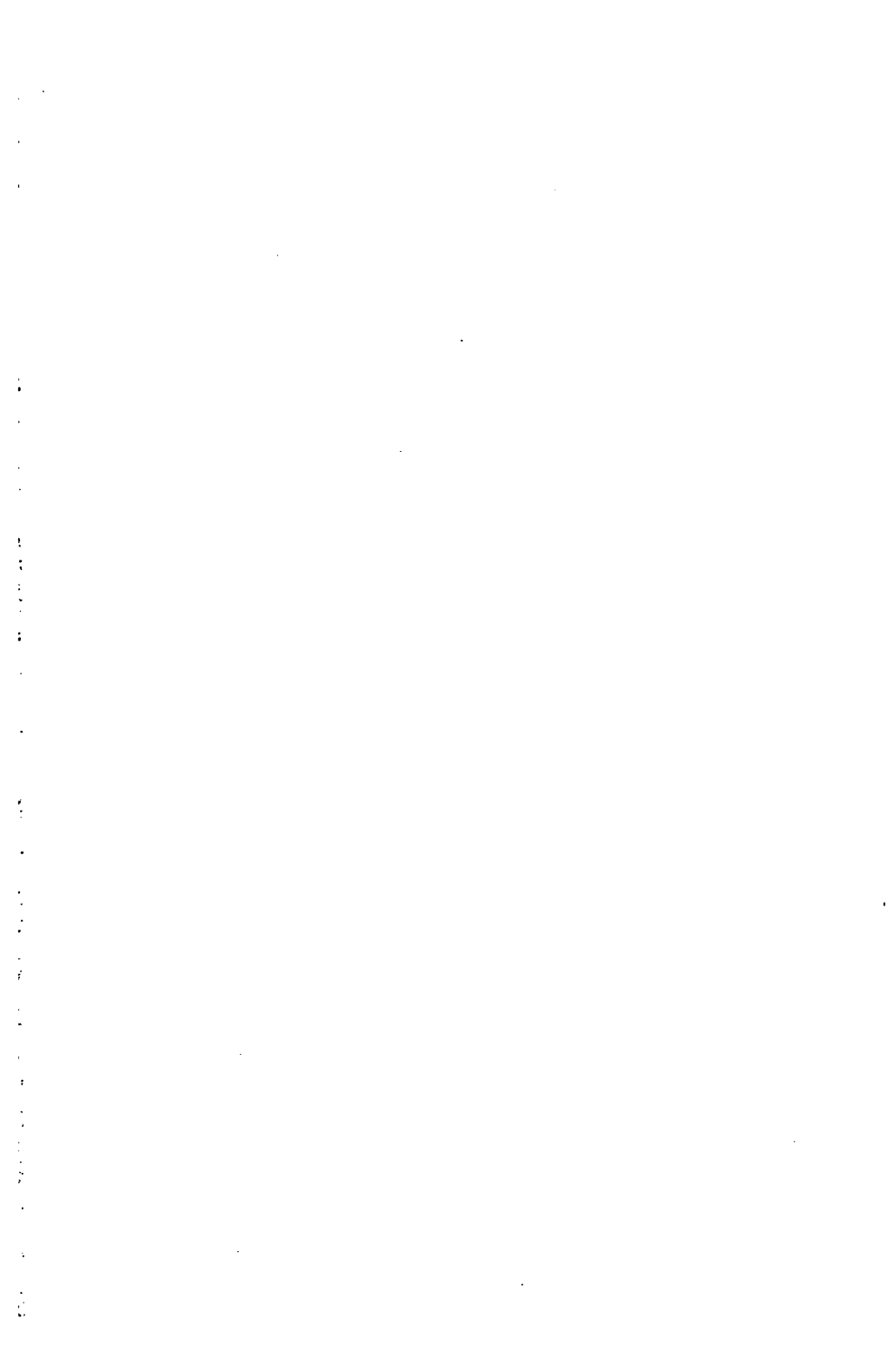


MANHATTAN STATE HOSPITAL, EAST. CAMP E.—FOR FEEBLE AND DECREPIT MALE PATIENTS.





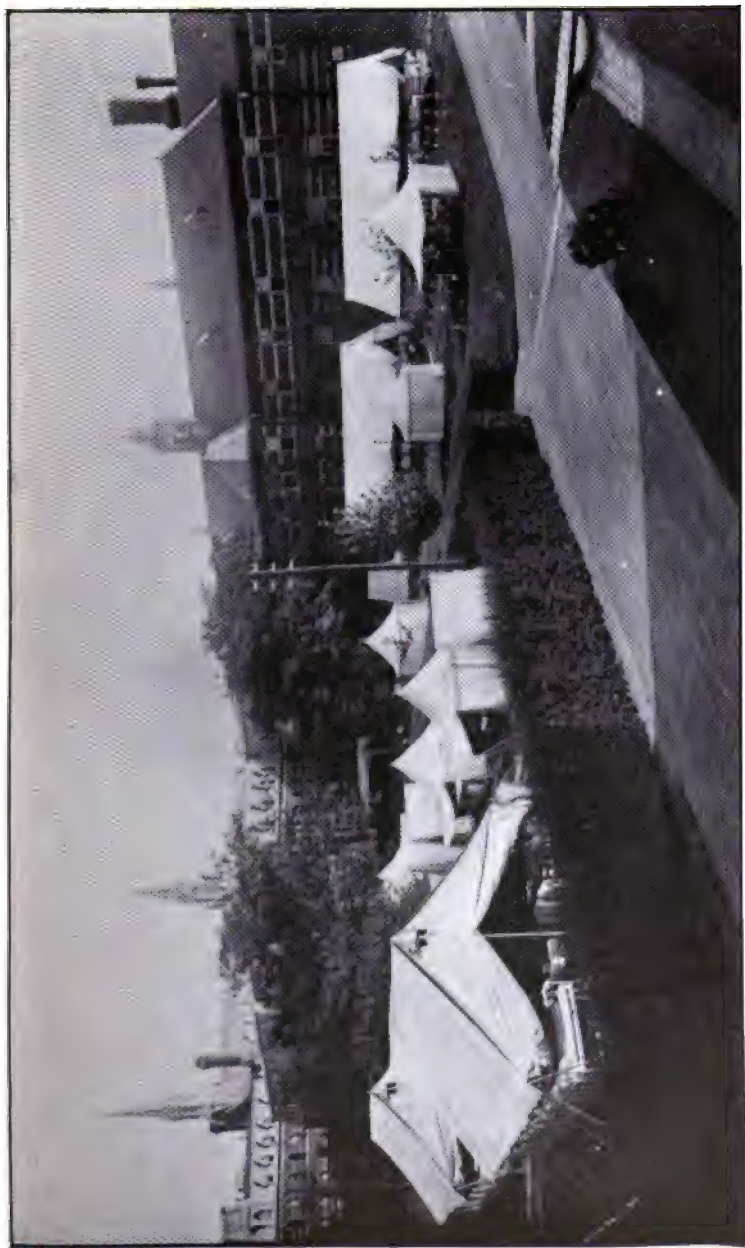
MANHATTAN STATE HOSPITAL EAST. CAMP A.—REVOLVING ISOLATION TENTS FOR TUBERCULAR PATIENTS.





MANHATTAN STATE HOSPITAL EAST. CAMP A.—VIEW OF TUBERCULOSIS CAMP IN WINTER LOCATION.





MANHATTAN STATE HOSPITAL EAST. CAMP A.—GENERAL VIEW OF TUBERCULOSIS CAMP.



patient's discharge, it being argued that this lack of appreciation of his past condition on the part of the patient will lead to complications in his future business and social relations with his friends and relatives, when he leaves the hospital. The patient under such circumstances will be only too apt to find in his past hospital residence a basis for delusions of persecution which may lead to eccentricities of demeanor at any time, the result being, unhappily, detention by the local authorities and a re-admission to the hospital.

In this class of cases the camp has shown its special usefulness, and some which formerly seemed hopeless in this respect have been awakened to the realization that their detention at the hospital was for their best interests, and not due to the machinations of their supposed persecutors.

Moreover, the freedom of open air life and the feeling that they are no longer forcibly detained, act more favorably on the general mental status of the patients, placing them upon their honor as to behavior and affording them the advantage of proving whether or not they are capable of self-control when given special privileges.

The beneficial effects of out-door life can be judged when it is stated that out of the entire 44 patients, there have been only three on continued medication during the summer.

The general mental status of the patients shows that there were 14 patients (31%) that had partial amnesia; 3 (7%) showed a greater or less degree of apprehensiveness. Of the delusions presented, 4 (9%) were of grandeur; 14 (31%) were of persecution; 3 (7%) were of religion; 2 (5%) were hypochondriacal; 18 (41%) were more or less depressed; 2 (5%) were elated; 4 (9%) were exalted. Of the hallucinations presented, 7 (16%) were of hearing; 2 (5%) were of the tactile senses; 1 (2%) was of smell. Three (8%) showed a greater or less degree of incoherence; two (5%) were more or less restless. No patient in the camp showed either untidy, suicidal, obscene, noisy, maniacal, hysterical, homicidal, filthy or destructive tendencies.

The average weight of the patients in Camp D, June 1st, was 144.375 lbs.; July 1st, shows a gain to an average weight of 149.034 lbs.; August 1st, shows an increased gain to an

average weight of 151.431 lbs.; September 1st, shows a still further gain to an average weight of 153.920 lbs.; October 1st, shows an average weight of 152.134 lbs.; November 1st, 148.007 lbs.; December 1st, 149.566 lbs.; the average net gain from June 1st to December 1st being 5.128 lbs.

The lowest individual net gain was .10 of a pound, the highest individual net gain was 13.5 lbs., the ratio between the lowest and the highest net gains and the average net gain for the camp being 1 : 135 : 51.

The average weight on admission was 144.375 lbs.; the greatest average weight at any time was 153.92 lbs. (September 1st).

Without exception, every patient in this camp showed a gain in weight with a concomitant physical improvement. There was no patient who lost weight after his admission to Camp D. This class of patients, being more or less convalescent before admission to the camp, was in fair physical condition, and for that reason an extraordinary gain in weight was not anticipated, as might be reasonably looked for in the case of the tuberculous and other classes of bedridden patients. The physical improvement, however, was greater in proportion than the gain in weight. This was shown in the improved circulation and the ruddy cheeks and lips; also by the increased muscular tone, with less tendency to fatigue. With the improvement in muscular tone came also an increased development of the muscular tissue, and it was remarked that the patients lost to a varying extent their flabby adipose tissue, and their flesh became much firmer and their general physical condition more "sound."

The patients did not take unfair advantage of the increased liberty afforded, but showed their appreciation of all that was done for them, indicating increased receptiveness, with less tendency to distractibility. Their delusions became less prominent, their hallucinations less vivid. The tendency to introspection was lessened to a marked degree, the patients seemed fully occupied by the affairs of the camp, and the majority of them took an active interest in the games and other amusements provided. As an instance of this, it might be mentioned that on the occasion of the field sports, the patients

were much interested in seeing that their camp presented an attractive appearance to visitors, and assisted in decorating it with flags and bunting to that end.

The weather during the summer was generally fair, there being an average of but one day a week upon which it rained. There was, however, wide variation in the temperatures recorded. During the period from June 1st to October 1st the temperature ranged from 50 degrees F. to 99 degrees F., with an average noon-day temperature of 82 degrees F., being approximately the same at each of the four camps in operation. Thus a dry hot summer was experienced, with the comfort of tent life emphasized, in a marked manner during this heated period.

The three cases which have improved sufficiently to be discharged presented, in brief, the following symptoms:

Case No. 1. Male; age on admission, 23 years; single; nativity, United States; occupation, clerk; assigned cause, over-study; form of insanity, acute melancholia; previous admissions, none; heredity, paternal grandfather insane; education, common school; duration previous to admission, two months; total duration of insanity, nine months.

On admission was much depressed and at times refused to speak; distractible; attention poor; retention fair; had an imperfect insight into his own condition; emotional tone lowered; had no hallucinations; had vague delusions of persecution; was introspective; apprehensive; talked in a rapid manner, but in a fairly connected strain, content of thought, that of impending danger, worry, etc. General physical examination showed no marked abnormality, except a general lowering in the muscular tone.

On admission to Camp D, the patient's mental condition showed very little improvement. After such admission he gradually improved in physical tone, ate and slept well, took an active interest in outdoor life and was able to work daily in the shoe shop. At the time of his discharge, October 15th, 1903, his introspective tendencies were less marked, he was not apprehensive and had no delusions or hallucinations.

Case No. 2. Male; age on admission, 32 years; married; nativity, Scotland; occupation, journalist; assigned cause of

insanity, heredity and overwork; diagnosis, acute melancholia; previous admissions, none; heredity, paternal uncle insane; education, academic; duration previous to admission, 6 days; total duration of the insanity, eight months.

On admission showed delusions of persecution, was well oriented, but had no insight into his own condition; hallucinations of hearing and sight; attention good; retention good; clean, neat and orderly in dress and habits. Physical examination showed no marked abnormalities, excepting a general lowering in the muscular tone, with a superabundance of flabby adipose tissue. The patient continued to express delusions of persecution and developed an extreme religious zeal. He would walk for hours with arms folded and head bent, showing an extreme degree of introspection.

The patient was in this condition at the time of his admission to the camp. At the end of the summer he had improved greatly in health, the muscular tremors had disappeared, the flabby adipose tissue had given place to a firm muscular structure. The patient was able to eat and sleep well and take an active interest in the affairs of the camp, occupying himself daily in the printing office. He did not express any delusions or hallucinations and his conduct and general demeanor were normal. Discharged October 23, 1903.

Case No. 3. Male; age on admission, 21; single; nativity, Russia; occupation, tailor; assigned cause of insanity, alcoholism; diagnosis, acute melancholia; previous admissions, one (at which time he was depressed and exhibited delusions of a persecutory character; duration of treatment at first admission, nine months); heredity, denied; education, reads only; duration previous to admission, 1 month; total duration of present insanity, 11 months.

On admission showed delusions of persecutions, hallucinations of hearing, attention poor; retention poor; concepts vague, elementary and ill-formed; content of thought that of persecution; ideation disconnected; emotional tone lowered; conversed in broken irrelevant manner; showing total lack of insight into his condition or environment; mildly confused; irritable; memory defective; inclined to be careless in dress,

but cleanly in habits. Physical examination showed no essential abnormalities.

Upon admission to Camp D, he showed beginning of insight into his past alienation and his delusions and hallucinations were not so active. He was, however, inclined to be hypochondriacal and displayed lack of initiative and spontaneity.

At the time of this patient's discharge, eleven months after admission, he had gained 27 pounds over his weight at the time of his admission. He had no delusions or hallucinations. He had perfect insight into his past condition and its causes. He was bright, active and orderly, working daily in the tailor shop, and was in every way fitted to resume active outside life.

At least a dozen cases could be cited to show the benefits of out-door life upon convalescent patients in whom the period of convalescence is prolonged and to whom all the ordinary methods of treatment have been administered without signal success. For these reasons we feel that their improvement is directly attributable to the open air treatment in tents.

While the past year has been the first in which the camp treatment has been extended to the above class of patients, no less effort has been made in applying it in the camps previously established for the treatment of the demented and uncleanly, the feeble senile patients and the tubercular patients. In these camps the favorable results shown in former reports have continued to be obtained. While as marked results cannot be expected in the camps for the demented and uncleanly, and for the feeble senile patients, as in the camps for cases of delayed convalescence and for tubercular patients, yet they are sufficient to justify the continuance and enlargement of this method of treatment. Not only is the improvement, both mental and physical, sufficiently pronounced, but the greater comfort of existence under such new and favorable conditions is a boon to these unfortunate patients, which alone justifies this means of care. The original camp for the tubercular patients is now a permanent feature in the treatment of the tubercular insane in the Manhattan State Hospital East, and continues in practical use throughout the entire year.

The third year of the existence of the tuberculosis camp will not be completed until June 15, 1904, and the following

report regarding this camp is given for the year ending May 1, 1904. During this time 71 phthysical patients have been under treatment with the following results:

Patients in Camp May 1, 1903.....	40
Patients received in Camp during year.....	31—71
Patients died during the year.....	23
Patients discharged from Camp.....	9—32

Patients remaining in Camp May 1, 1904:..... 39

Two factors combined to produce a slightly increased death rate—one the unusual number of patients received in whom the phthysical process was complicated with other diseases—the other, the advanced stage of the disease upon admission.

Two of the deaths could not be considered phthysical—one patient dying in paretic convulsions and one in status epilepticus, both having previously shown physical improvement, with the tubercular process held in abeyance. Hence those two cases are excluded in fixing the phthysical death rate. As regards the remaining 21 deaths, in which pulmonary tuberculosis was either a direct or a contributory cause, it may be mentioned that two were senile cases, with marked arterial sclerosis, one of which also developed a severe attack of acute enteritis, one suffered from chronic parenchymatous nephritis, one from chronic interstitial nephritis, one from chronic endocarditis, one from epilepsy, although not dying in status, while one patient not only had phthisis, but also had hepatic cirrhosis, chronic interstitial nephritis and tabes dorsalis. Considering these facts and also that these are insane patients with the most varied forms of mental alienation, the death rate of 29.57% on the number of patients treated and of 8.81% on the total number of deaths occurring in the hospital during this time (238) does not appear excessive, although slightly less favorable than during the preceding year.

The following table of weights shows in a graphic manner the condition of the patients who subsequently died after admission to the camp:

WEIGHT ON ADMISSION OF PATIENTS WHO DIED.

Less than 100 pounds.....	8
From 100 to 110 pounds.....	6
From 110 to 120 pounds.....	5
From 120 to 130 pounds.....	2
From 130 to 140 pounds.....	2

The period of camp residence of these patients also demonstrates the advanced stage of the disease when received for treatment, as the average period of camp residence of all who died was but six months and twenty-three days. Two patients lived less than one month, while four lived less than one week after their admission to the camp. Two patients were in such an advanced stage of the disease that they lived but one day after their admission, their condition on admission admitting of no hope for future improvement.

Thus it will appear that our slightly increased phthisical death rate is not caused by any failure of the camp treatment.

During the past year seven patients have been transferred to other wards of the hospital with the disease apparently permanently arrested, who still remain in good health after periods varying from two to ten months. Two patients have been discharged, not only from the camp, but from the hospital, recovered mentally and physically. These nine cases give approximately 13% of the patients treated who may be said to have recovered. The gain in weight and period of residence of the above patients are shown in the following tables:

GAIN IN WEIGHT OF PATIENTS DISCHARGED FROM CAMP.

Greatest gain.....	83 pounds.
Smallest gain.....	10.5 pounds.
Average gain.....	28.83 pounds.

PERIOD OF RESIDENCE OF PATIENTS DISCHARGED FROM CAMP.

Longest residence.....	1 year, 6 months.
Shortest residence.....	3 months, 4 days.
Average residence.....	9 months, 1 day.

It should be added that all of these patients were in an early stage of phthisis when admitted, and all showed a steady progressive physical improvement until their discharge from the camp, thus again demonstrating the added value of undelayed treatment.

But aside from the recoveries the majority of the patients who still remain under treatment have shown marked physical improvement. Twenty of these patients have been under treatment continuously throughout the year. Four who were in the camp a year ago improved sufficiently to be transferred to other wards, but the disease again becoming manifest, they were returned to the camp, while there still also remain under treatment fifteen patients, received during the year.

Considering the thirty-nine patients who constituted the population of this camp, May 1, 1904, it is found that twenty-seven have improved physically, eight have failed, while four have remained practically unchanged, three of whom, however, have been in the camp less than one month. Of the twenty-seven patients who have improved the following table shows the gain in weight during the past year, this being perhaps the best criterion for judging the general condition of this class of patients:

GAIN IN WEIGHT OF PATIENTS WHO IMPROVED DURING PAST YEAR.

Greatest gain.....	46	pounds.
Smallest gain.....	3	pounds.
Average gain.....	16.275	pounds.

Of the eight patients who have shown physical failure the following table gives the loss in weight for the past year:

LOSS IN WEIGHT OF PATIENTS WHO FAILED DURING THE PAST YEAR.

Greatest loss.....	35	pounds.
Smallest loss.....	.5	pounds.
Average loss.....	12.79	pounds.

The patient who lost thirty-five pounds has died since May 1st, he being in an excited, maniacal condition which hastened the course of the disease. Not all of the others are considered hopeless, three especially offering good prospects for future improvement.

It is interesting to note that the best results of the past year were obtained during the winter months, although the past winter was the most rigorous one known in years. From December 1, 1903, to May 1, 1904, the highest temperature recorded out-doors at Camp A was 48 degrees F., the lowest, 4 degrees F., while on twelve different occasions was zero weather registered, accompanied by numerous winds and snow-

falls. The mean average out-door temperature during the winter was as follows:

December	30.03 degrees F.
January	23.4 degrees F.
February	24.4 degrees F.
March	34.16 degrees F.

Notwithstanding this unusual severity of the weather, the camp patients passed the winter without discomfort, and it was during this period of the year that the most marked gains were made, as is shown in the following table, which gives the number of patients attaining their highest weight in each given month excluding such patients as died and three who have been in the camp less than one month:

May, 1903	5	November, 1903	5
June, 1903	3	December, 1903	6
July, 1903	0	January, 1904	5
August, 1903	2	February, 1904	7
September, 1903	2	March, 1904	7
October, 1903	1	April, 1904	2

The temperature of the interior of the tents was maintained in cold weather at from 60 to 65 degrees F. by means of two large coal stoves in each tent, but even in the coldest weather such patients as were able, were given out-door exercise—a wide board walk being arranged for their special use. And becoming gradually accustomed to the cold as they did, no complaints were heard, and quickened circulation, augmented appetite and increased power of assimilation showed that this treatment was of far more value than medicinal aid. While the heating facilities of the camp were such that a higher temperature could have been maintained within the tents, experience has proven that a temperature higher than 65 degrees F., or at the most 68 degrees F., is attended with less favorable results, for while, as is well known, even freezing fails to destroy the tubercle bacillus, yet a low temperature inhibits its activity. But the most potent factor in producing the beneficial results of the winter months, appears to be the stimulating influence to the circulatory system with increased resistance to the ravages of this bacillus.

The fact that not a single patient did as well in July as in other months of the year calls for special comment. During this month forty-three patients were under treatment, but

seventeen of whom showed a gain in weight, twenty lost weight, and six remained unchanged. Aside from the general unfavorable influence of the hot weather, this may be explained by the great variability of the weather during this month—a most unfavorable condition in the treatment of pulmonary tuberculosis. During July, 1903, the temperature at the tuberculosis camp ranged from 66 degrees F., to 99 degrees F.; within a single day there was a range of 16 degrees F., while upon seven days there was a variation of over 11 degrees. Considering also, that for twelve days out of the month it was either cloudy or rained, it may be seen that an undue proportion of moist hot weather was experienced with its devitalizing effects upon the consumptive, as upon mankind in general.

Twenty-one patients remain in the hospital who were among the original camp residents when this system of treatment was inaugurated in June, 1901, of which number sixteen are now in the camp, nine of whom have been continuously under treatment since that time. The results obtained for the past year in these cases is, of course, included in the table showing the results obtained in the entire number of patients treated. Five of the original phthisical camp patients are in other wards of the hospital, all in good physical health, the time intervening since they were removed from the camp varying from two and one-half years to eight months. These original twenty-one camp patients still remaining in the hospital made an average gain in weight under treatment of thirty-six pounds. That even patients advanced in the disease should not always be considered hopeless is evidenced by the following table which shows the weight of these patients on admission to the camp, thus furnishing an index to their general physical condition at that time:

WEIGHT ON ADMISSION OF TWENTY-ONE ORIGINAL CAMP PATIENTS

STILL IN HOSPITAL.

Under 100 pounds.....	8
From 100 to 110 pounds.....	6
From 110 to 120 pounds.....	3
From 120 to 130 pounds.....	2
From 130 to 140 pounds.....	1
From 140 to 150 pounds.....	1

One patient gained 74 pounds, from 90 pounds on admission to 164 pounds, when transferred from the camp. Another one of this number just doubled his weight in a period of fourteen months, weighing when admitted 83 pounds, and when transferred 166 pounds.

Such improvements in the arrangement and construction of the camp as have been suggested by experience have already been mentioned in discussing the camp for convalescents and shop workers. These improvements have equally been applied in detail to each of the four camps at present constituting the tent system at the Manhattan State Hospital East.

In addition certain improvements in the tuberculosis camp are not applicable to the others. During the winter months, when the sides of the tent are necessarily closed, it was found that on stormy days the darkness was a serious objection. This has been obviated by inserting windows in the canvas wall, the window frame being supported by the timbers which also supported the stove pipes as they pass through the canvas. And contrary to expectations, not a window has been broken, notwithstanding the severe wind storms experienced. These windows also serve as a means of ventilation, supplementing ventilators placed at either end in the top of each tent.

Another innovation has been the carrying out of a suggestion of Dr. Macdonald's in the construction of small revolving tents, so placed upon a base with rollers between that they may be readily turned to face any direction, so as to give the patient the benefit of a sun bath during any period of the day, or what is equally important to afford means of protecting them from the direct force of the wind. No patient with a continuous elevation of temperature is allowed to take exercise, but such a patient when placed in one of these small revolving tents can take his "rest cure" literally out of doors, the canvas being left open at least upon one side. One revolving tent has been constructed sufficiently large to contain two beds, and thus the same advantage is afforded to such patients as are too weak to use the reclining chairs which are placed in the smaller tents.

The utmost care is taken in guarding the personal hygiene of these patients, and the usual precautions are observed in caring for the sputum, clothing, etc., so that it may safely be asserted that a non-tubercular patient would have less chance to develop the disease in the tuberculosis camp than in any other ward in the hospital.

In conclusion, we would state that in the extension of the camp treatment, as we have endeavored to outline it, we have found but few classes of insane patients who are not capable of improvement when living an out-door life, even if it be feasible to provide camps for certain classes, but for a comparatively brief period during the favorable months of the year. Even upon normal individuals camping exerts a most health-giving influence, how much more then should its therapeutic value be manifested in the mentally deranged. In the restoration of mental health, the effect of the unrestrained life in tents appears to be of vital importance, and it is our opinion that this freedom cannot be as satisfactorily obtained by the use of pavilions, either of a permanent or semi-permanent type, the tent system alone being competent to fully supply this want.

Two tables of statistics are appended showing in a condensed form the general results obtained in the camps for convalescent and tubercular patients, such results being deemed the most significant, although, as has been stated, the results obtained in the camps for the demented and uncleanly, and for the feeble senile patients, have been in some respects no less gratifying. For the future, it is proposed, whilst continuing the use of the camp for consumptives throughout the year, to enlarge the capacity and extend the scope of the summer camps so that in the current year three hundred patients may be thus provided for instead of one hundred and seventy-five as in 1903, and bed-ridden cases from the hospital-wards, and others of different types may be accommodated.

TABLE OF GENERAL STATISTICS.

*Camp for Tubercular Patients, for a Period of 366 Days,
May 1, 1903, to May 1, 1904.*

Capacity of Camp.....	43	*Percentage discharged	3
Number of patients admitted..	71	Percentage transferred to	
Number of patients discharged	2	wards	10
Number of patients transferred		Percentage died	33
to wards	7	Percentage out for exercise	
Number of patients died.....	23	(average)	40
Number of patients out for ex-		Percentage confined to bed	
ercise (average)	28	(average)	21
Number of patients confined to		Percentage on continued med-	
bed (average)	15	ication (average)	28
Number of patients on contin-		Percentage improvement:	
ued medication (average)...	20	(a) Physically	55
Number of patients improved:		(b) Mentally	34
(a) Physically	39	(c) Discharged from Camp. 13	
(b) Mentally	24	Percentage of patients em-	
(c) Discharged from Camp. 9		ployed	21
Number of patients employed			
in camp ward work (aver-			
age)	15		

*Camp for Convalescent and Shop Workers, During a Period of 183
Consecutive Days, June 1, to December 1, 1903.*

Capacity of Camp.....	44	*Percentage discharged	7
Number of patients admitted..	47	Percentage out for exercise...	100
Number of patients discharged	3	Percentage on medication.....	7
Number of patients died.....	0	Percentage improvement:	
Number of patients out for		(a) Physically	100
daily exercise	44	(b) Mentally	100
Number of patients bedridden.	0	(c) Improved and under con-	
Number of patients on contin-		sideration for discharge... 15	
ued medication	3	(d) Improved and dis-	
Number of patients improved:		charged	7
(a) Physically	47	Percentage employed	100
(b) Mentally	47	Occupations:	
(c) Improved and under con-		(a) Printers	32
sideration for discharge... 7		(b) Shoemakers	34
(d) Improved and dis-		(c) Tailors	34
charged	3		
Number patients employed....	47		
Occupations:			
(a) Printers	15		
(b) Shoemakers	16		
(c) Tailors	16		

*Percentages are based on total number of patients under treatment.

DISCUSSION.

THE PRESIDENT: It seems to me that the last argument that should be advanced in favor of or against any system of treatment of the insane, is that of economy. If it costs five times as much to carry out the better treatment. I think the money should be expended. But I think in this case the argument of economy does not hold. We have had up to the 15th of this month, three continuous years' use of the tent treatment for the tuberculous insane. Three thousand dollars in three years has been the entire cost of the tents and they are still in use, with the exception of one which was damaged by a severe storm and the remnants of which were used in repairing the others. As to the matter of warmth, there has been less variation of temperature than in wards upon the side of the buildings where they got the cold winds. Another argument in favor of the tents in my judgment as against the board structures is just the one which Dr. Clark suggests against them. That is, they *will* wear out. This is the greatest thing in their favor. The germs cannot always be kept active. Thirty-four years ago when I first went to Blackwell's Island, I found there some wooden structures which had been erected to meet an emergency, and with the intention of demolishing them when the emergency should have passed. They had been then several years in the service, and, though dilapidated, were still in active use. A year or two later, whilst I was in charge of the general hospitals there, a large increase in the number of cases of small-pox and other contagious diseases occurring, led to the hasty erection of some so-called *temporary* wooden pavilions, with the promise that so soon as the epidemic should cease the pavilions would be destroyed. That time has passed, and for many years no cases of contagious disease have been treated at Blackwell's Island, but the last time I passed not only these pavilions, but some of the still older ones referred to, were still occupied. With this experience, even if there were no other argument in their favor, I should advocate the use of tents in preference to structures either wholly or in part composed of more permanent materials. The nearer the tuberculous patient is brought to actual open-air, out-of-door treatment, the better, and in accomplishing this no structure can at all compare with the canvas tent. Ventilation goes on in every square inch of its surface instead of necessarily restricted openings, the sides can be rolled up or let down in a moment, and, if necessary, a score of times a day, and, above all, the lodgment of the tubercle-bacillus is reduced to a minimum.

DR. BURR: I think, Mr. President, that the Association is very much indebted to the officers of the Manhattan State Hospital East for this series of papers which has been presented in the last few years, first, upon the tent treatment for the tubercular, then for the infirm and the untidy, and now for those of the convalescent type. I am satisfied from my reading of these articles, listening to them, and

conversation with those who have been interested in this form of treatment, that it affords many advantages and must in certain institutions at least be an important adjunct to the successful treatment of patients. Not the least interesting feature by any means is the picturesqueness of the grounds, to which the tents contribute. It must be a source of pleasure to patients in these tents to feel an additional degree of freedom, that they are not contracted and hemmed in by high walls and other things suggestive of seclusion and restraint. Speaking as your late secretary, I personally feel very much indebted for this and the other valuable papers. They have been instructive and useful in the extreme.

DR. J. C. CLARK: I should like to ask Dr. Macdonald's opinion as to whether the canvas tent is in any way superior to the board tent. In Maryland we have been using tents for some years, but on account of the high price and short life of the canvas tent, we are thinking seriously of changing to the board tent. They last longer and will possibly in the end be more economical. While we do not want to make any mistake, I think the board tent will be as well. We find that a canvas tent will go to pieces in two or three years.

DR. HUGHES: The idea of all medical men now is to get rid of germs of all kinds, and the objection to the board tent, I think, is very considerable. I think that the hospital of the future will be one that will last but a short time, one that can be disposed of and replaced by an aseptic building. Sanitation is the object of the day. Most hospitals have been built too long. The germs of tuberculosis get into them. The same is true of jails, almshouses and penitentiaries. It is a crime against man to confine people to these germ-laden institutions. Many a man who has the misfortune to be consigned to a public correctional institution like a jail, or eleemosynary institution like an almshouse or hospital, in a few years succumbs to tuberculosis from the combined influence of indoor life and germs which attack the sedentary and the indoor dweller.

THE NEED FOR CAREFUL AND EXHAUSTIVE SCIENTIFIC STUDY OF SO-CALLED MENTAL EPILEPSY.

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The importance of all data pertaining to this form of epilepsy in future is to be estimated when we recall the increasing number of cases of a medico-legal character in which the existence of this form of disease plays a part. Then, too, the attention of the profession has been called to mental epilepsy more and more in the past few years. The public are becoming informed upon the existence of this pathological state and upon some of the phenomena connected with it, through the agency of the psychological novel, and the columns of the public press. Some very erroneous ideas are formed by the laity as to the actual conditions which may be present in any given case at the time of the occurrence of the attack. Aside from the desire of the afflicted patients for relief from this very deplorable condition an added interest to the disease is conferred by the fact that the condition may give rise at any time to the most complicated of medico-legal problems.

Then, too, many of the closest relations of society may be greatly complicated at any time by the occurrence of one of the attacks under consideration, and the failure of relatives and friends to properly appreciate the irresponsible state pertaining thereto. The work of the student of pathological conditions is, therefore, nowhere to be taken more seriously than in the study of this condition, at the same time the difficulty of exact observation of these cases, and accurate record of the same is very great.

Few of these cases come under the observation of the physician very early in their history. When his attention is first called to a case of this nature it is often in such a way as to dispose him to consider it in a prejudiced light. The earlier literature of the condition was especially vague, and often contradictory, in its descriptions, and uncritical in its acceptance of the statements presented of the symptoms occurring during the attacks. Amongst the laity, of course, as might be expected, the prevalent idea about the condition is drawn from the unscientific, and highly colored description in some very interesting fiction. In these fictitious narratives the plot hinges upon the mysterious disappearance of some individual, the apparently insoluble domestic and legal problems occasioned thereby, and the final solution of all such problems to the perfect satisfaction of the reader by the simple process of a sudden restoration to consciousness of the afflicted person.

Very few of these tales are to be trusted as in any way veracious accounts of any type of genuine mental attacks, or as realistic descriptions of the actual experiences of any person. We, of course, have all had too many examples of the lack of accuracy in many descriptions of common disease published in newspapers, without doubting that but little reliance is to be placed upon the ordinary account of the manifestations of obscure and infrequent mental conditions as furnished in the columns of the daily press, especially if other circumstances are connected with the case which commend themselves to the lovers of the sensational. Very valuable works on nervous and mental diseases are often found to be somewhat vague and apparently contradictory in their descriptions of this form of epilepsy. There is a lack of minute description of the appearance and actions of the patients. This tendency seems to be changing for the better, as recent monographs upon the subject are, many of them, replete with details of history and symptomatology.

Every medical man whose attention is called to a case of this nature should make for himself the most careful and precise study of the case that is possible, observing personally the conduct of his patient, instead of relying upon the relatives or friends or patient himself for the details of the attack.

A patient of this character should be especially urged to place himself, for a short time at least, under observation in a sanitarium or hospital where the facilities for making unprejudiced observations and recording same are superior, as a rule, to those otherwise attainable.

Especial personal attention should be given as to the actions and conversation of a patient supposed to be in an epileptic automatic state. Are these acts and the conversation of as complex and finished a character as the friends have described to us? Is the conversation really of a character which would convey no idea of abnormality?

In accepting where necessary the statements of others about the conduct of the patient during attacks of mental automatism, possible exaggeration or misrepresentation must be taken into account where the patient in future to appear as parties to an action in court. If it is permitted an expert to form an opinion of the nature of a patient's condition at a certain time largely from statements made to him by the patient and to express that opinion in court, it would presumably be very easy for a shrewd lawyer, posted in the symptomatology of the automatic epileptic condition (and there are many such), after a conference with a criminal, to have the latter describe a case as his own which would deceive any expert who based his opinion upon the statements of the patient's account of his own case and did not have the opportunity to verify the truth of the latter by access to other varieties of evidence or personal observation of the patient.

The exact condition of the body and mind in epileptic automatism is a little difficult for even the medical mind to grasp. There is even yet more than one difference of opinion as to pathological details. It must not be forgotten that, to the lay mind, which has given no previous consideration to the subject, a clear conception of the meaning and relationship of such terms as "consciousness" as distinguished from "sub-consciousness, automatism, etc.," is almost impossible. The differences between mental epilepsy, and the pre-epileptic, post-epileptic paroxysm and inter-paroxysmal manifestations of mental disease occurring in conjunction with epilepsy of the

ordinary type are very confusing to the average jury. They are often classed together under the term epileptic in insanity.

The questions asked by the lawyers are seldom intended to clearly differentiate these conditions. The medical man must therefore especially frame his answers in such language that the jury may not be in doubt as to which form he refers.

CHARACTERISTICS OF THE SCOTCH LUNACY SYSTEM.

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The Scotch lunacy system was formulated in the lunacy act of 1857, and represents the progressive development of nearly half a century. Its basic principle imposes responsibility for the general interests of the insane upon the central government, reserving to it the powers necessary to conserve them, but constituting local authorities the executives in direct dealings. Its application is well exemplified in the method prescribed for ensuring adequate accommodation for such.

For the purpose of pauper lunacy administration, Scotland is divided into twenty-seven districts, each having a representative board, appointed from members of certain elective bodies and charged with duties similar but rather more extensive than those of trustees of our institutions. The need of each lunacy district as regards such accommodation may be determined by the general board of commissioners in lunacy and intimated to the district board, whose duty requires it forthwith to prepare plans, specifications, estimates of cost, and, should a new asylum be projected, to express its opinion as to a suitable and eligible site.

Such preliminaries having been arranged to the satisfaction of the general board, the latter may proceed immediately to assess the gross cost upon the lunacy district, whose proper officers are in duty bound to collect and pay over the whole amount within eight months to the local board, which must complete the undertaking within two years. Should the district board fail to act, the general board may represent such

failure to one of His Majesty's principal secretaries of state, who may authorize application to the court of sessions for the appointment of a person to exercise all its powers in this relation at the expense of the district.

Although there may be in this a potentiality of arbitrary action hardly permissible in this country, there is good reason to believe that the wise and discreet use of such power has largely eliminated the evil of overcrowding in Scotch asylums.

Authority of the government centres in a general board of commissioners in lunacy, composed of three unpaid and two paid members, assisted by two paid deputy commissioners. The latter four are physicians who devote their entire time to the service.

In advisory and supervisory capacity their duties are analogous to those of the Massachusetts board of insanity and other similar commissions, but their direct functions are important and comprehensive.

They may initiate investigation in any case arising under the lunacy act, and may summon witnesses to testify under oath.

The boundaries of lunacy districts may be readjusted to changing conditions according to their judgment.

Within their discretion are the granting and revoking of all licenses to care for the insane in private asylums, lunatic wards of poorhouses and private dwellings.

They constitute a court of appeal for the arbitration and settlement of differences arising between parish and district authorities or asylum officials.

In matters of commitment, detention and discharge of patients the provisions of the lunacy act are strikingly similar to those observed in Massachusetts, suggesting our model of imitation. A few of the more notable exceptions may be presented.

Any qualified medical officer of a public asylum may grant a certificate of insanity in the commitment of a pauper to said asylum, but not of a paying or voluntary patient, although other physicians are prohibited from so acting with reference to any asylum in which they have an immediate or pecuniary interest.

The superintendent of any asylum, public or private, may receive and detain any person as insane, for a period not exceeding three days, whose case is duly certified as one of emergency by one qualified physician, who may be a medical officer of the asylum concerned.

Authority of detention conveyed by an order of commitment ceases three years from the first day of January next following admission of the patient, and annually thereafter, unless there shall be transmitted to the general board of commissioners in lunacy a certificate by the superintendent "on soul and conscience" that further detention of the patient is "necessary and proper either for his own welfare or the safety of the public."

The general board may, on application of the proper person, issue a permit for a patient to leave an asylum on probation "for such time and under such regulations as it may consider necessary or proper," and to return without new commitment at any time within the specified period.

The last two provisions are in harmony with my observation in Scotland and on the continent that zeal in restoring suitable patients to community life is greater there than here.

The voluntary relation of patients to asylums is encouraged by authorizing any superintendent, with previous written consent of one commissioner, to "entertain and keep" "as a boarder any person who is desirous of submitting himself to treatment, but whose mental condition is not such as to render it legal to grant certificates of insanity." Such cannot be restrained longer than three days after giving notice of intention or desire to leave.

The early treatment of the acutely insane, without resorting to commitment, is facilitated by allowing such to be received into unlicensed houses "for temporary residence only, not exceeding six months," on the certificate of one qualified physician that the mental affection is not confirmed and such temporary care is expedient with a view to recovery.

Otherwise, registration of the insane is so thorough that few escape official notice.

Every inspector of the poor is required on penalty of £10 to

report the name and location of any pauper lunatic who comes to his knowledge within his district.

Supervision extends over all private patients having property under curatory. Other private patients are not exempt unless they are cared for in their own homes or elsewhere without compensation, and are not harshly or cruelly treated, and, if insanity has existed longer than one year, are not subject to "compulsory confinement to the house or restraint or coercion of any kind."

The high ratio of visible insanity is thus partially explained. Over sixteen thousand of four and one-half million inhabitants are registered as insane; 1 to 281, against 1 to 308 in Massachusetts. In forty-five years the general population has increased 50 per cent; the insane, 186 per cent, more than three and a half times as fast.

With the exception of fifty insane criminals in the lunatic department of the general prison, they are distributed in five locations: 10 per cent in licensed wards of eighteen poorhouses; 17 per cent in private dwellings; less than 1 per cent in three private asylums; 26 per cent in seven royal asylums; and 46 per cent in sixteen district asylums.

During the last decade there has been a retrograde movement from private asylums and poorhouses to the extent of 20 and 32 per cent respectively; a nearly stationary condition in royal asylums and private dwellings; and a strong current toward the district asylums, whose inmates doubled.

Lunatic wards of poorhouses are always separate from the quarters of other classes, and, if the quota of insane exceeds sixty, must be in detached buildings.

A license, revocable at will, must be issued by the general board of commissioners directly to the governor of the poorhouse, which lapses at the termination of his service and requires annual renewal. He is made personally accountable for carrying out its provisions, which relate specifically to the care and treatment of patients, their dietary, the housekeeping and ward furnishings.

Admissions in each case must have the sanction of the general board, and are restricted to the harmless and incur-

able, with the exception of the three parochial asylums, which receive the curable and dangerous also.

A physician must be resident for more than 100 inmates, and his visitation daily for 50 to 100 and bi-weekly for a less number.

The unique feature of the Scotch regime pertains to family care, in which are 17 per cent of all registered insane, 20 per cent of pauper insane; in round numbers, 2,800 patients, enough to fill six district asylums of average size; distributed among more than 2,000 families, in every county of Scotland. Two counties thus provide for 44 per cent of their insane wards; two others, 40 per cent, and so on, down to 7 per cent.

Such has been the growth of many years. The beginning seems to have been the registration of defectives in private dwellings at the inauguration of the lunacy act, in order to bring them under supervision without formality of commitment. The practice has continued to the present, affording institutions relief from admission of many whose commitment poverty would otherwise have compelled. A thousand patients under family care, or 37 per cent, have never been inmates of asylums. The enrollment of 1902 contains 106, or 40 per cent. They usually remain with relatives, whereas others from asylums are boarded with strangers in most cases.

Last August I had the pleasure of seeing some of these patients in families in several villages in the county of Fife, where conditions are more favorable than in the western and highland districts, although I was assured and feel confident that they are always as comfortable for the patients as for the people in the neighboring communities.

In the main, the patients were quiet, inoffensive, demented or feeble-minded, and manifested no special eccentricities in manner or appearance. One woman sat alone in her room, silent and downcast, being at night restless and noisy, to the discomfort of her room-mates. She was a new-comer, and considered unsuitable by her guardian, but her gradual improvement seemed to justify the parish doctor in delaying her return to the asylum in the hope of ultimate success.

A single bed room, of moderate size, with one window, is usually assigned to the use of all the patients together, who

sleep in separate beds arranged in niches in the walls. They suffer no greater crowding than other members of the family, and share all their comforts and privileges, as a rule.

The guardians appeared to be kind-hearted and respectable. Their motive for the work is evidently thrifty, but not unworthy. One was observed to be a prosperous farmer, who kept twelve cows and several horses, being greatly assisted in their care by his three able-bodied male boarders.

Several spinsters till small gardens with the help of their female wards; but everywhere their robust health, good nutrition, and contentment assured me that the benefit was mutual. I was told by an inspector who had been familiar with the system for twenty years that the relation often extended over long periods, and led to strong attachments between patients and guardians.

One could wish to see fewer young children brought into such association, but care is taken to avoid it so far as possible.

The families which I visited averaged three patients each, but the general average is only 1.25, 1,659 having one, 334, two, 117, three, and 45, four. Restriction to one or two in a home is favorably regarded, as offering the best chance of sharing the family life.

The patients are widely scattered, and never permitted to become so numerous as to assume a distinct caste in the community, a striking contrast to Gheel, where 1,800 insane are boarded with 95 per cent of the families of six or seven villages having a total population of 13,000, being one to seven, or 14 per cent. The greater difficulty of supervision is obvious, the inherent weakness of the system. However, good safeguards have been adopted.

The Deputy Commissioners in Lunacy inspect twice yearly, and are experienced counselors to all. The inspector of poor sees them quarterly, as the agent of the parish to which they are chargeable for support. The parish doctor calls regularly every three months, oftener if illness requires, and receives a special fee for each visit, an inducement to the faithful discharge of this duty.

In the selection and control of families the key to the situa-

tion is held by the general board, whose sanction must be obtained by each one, from whom it may be withdrawn at any time.

Three factors are operative in forwarding the system. The general commissioners afford suggestive and sympathetic oversight, stimulating the interest and co-operation of asylum superintendents and parish officials. They are actuated by the highest motives, firmly believing that the welfare and happiness of patients are promoted and overcrowding in asylums lessened. The asylum superintendents control the selection of patients, and might seriously obstruct progress if they should not accept the theory that the primary functions of asylums are curative and custodial, and simpler methods appropriate in the care of those who are suitable to live without. But whatever the attitude of the general board or of the superintendents, inertia would be inevitable unless adequate incentive were presented to local authorities, who have the initiative, and must assume no small additional burden in the management of family cases.

Such incentive arises out of pecuniary saving to the rate payer. The weekly asylum rate for maintenance for 1902 was \$2.59. Incredible as the claim may seem at first blush, I was told that the county of Edinburgh saves three shillings a week on each of its 343 charges in private dwellings, or the sum of \$13,000 annually, although its family care rate is highest of all the counties, exceeding the mean nearly two shillings. The average saving to parishes in 1902 was \$1.03 weekly per patient, or forty per cent., amounting in the aggregate to over \$140,000. A moderate deduction should be made for cost of clothing, medical attendance, and visitation by parish officers, and, in a computation of the ultimate cost to rate payers, allowance should be made for salaries and expenses of the two deputy commissioners in lunacy, which are not directly chargeable to the parishes.

However, on the other side of the account should be added the interest on the investment necessary to establish and keep in repair six asylums of average size which would be necessitated in housing family care patients. Such economic

result is extraordinary, and could not, in my judgment, be paralleled in this country.

The prototype of Scotch institution for the insane is the Royal Asylum, which represents in Scotland the McLean, Butler and Concord hospitals of New England. They were founded and endowed mainly from private benefactions, but, with two exceptions, received aid at the outset by contributions from parochial treasuries. Chartered and governed as corporations, they are pre-eminently private establishments, although three-fifths of their inmates are dependents from neighboring parishes, by which they are supported at a fixed charge slightly in excess of the district asylum rate.

Nearly a thousand patients are cared for at "Morningside," or Aberdeen, but 600 equals the average capacity.

They are beautifully environed, usually occupying some old estate of ample acreage, with broad lawns set with many trees, shrubs and flowering plants, in the midst of which stand massive blocks of houses of brick or stone, whose original, compact arrangement is gradually disappearing in renewal and extensions on the segregate plan, with small units and wide intervening spaces. Especially marked is this tendency in the recent development of the Royal Crichton institution, at Dumfries, under the able direction of its progressive superintendent. Nowhere else, not even at Alt-Scherbitz nor the newest example of German colony at Galkhausen, did I observe so complete differentiation of classes and independence of administration. This old and rich asylum is being rapidly reconstructed, according to hospital and colony ideas more extreme than are generally accepted in Scotland, and requiring larger resources than are commonly available, yet presenting the essentials of the general trend of progress.

The first distinction is drawn here, as elsewhere, between private and pauper patients, in two main groups, eventually to be separated by considerable distance. Present activity pertains to the division for indigent cases. There were in process of construction at the time of my visit two fine reception hospitals, one for either sex, each designed for forty patients, located about 100 yards apart, and identical in interior plan, but differing architecturally.

The first story is divided in halves by a broad corridor, communicating in front, on the one side, with a reception ward of sixteen beds with four single bed rooms adjoining, and on the other with a ward for twenty convalescents. In the rear is commodious provision for office of resident physician, history taking, reception and examination of patients, their observation and temporary care. The dining room is adjacent to the convalescent ward and the kitchen, the latter isolated in a back corner.

The second story furnishes a patients' dormitory, and living rooms for officers, nurses and servants, so arranged as to afford suitable separation.

Both hospitals would be in charge of a woman physician, resident in the men's department. The matron, being also head nurse, would hold a similar relation to both, living in the women's department. During the day all nurses would be women, except on the convalescent male ward, where selected male nurses would be on duty continuously, and at night throughout the men's hospital.

A new patient would be taken at once to the reception room with associated bath, and receive the customary attention, after which she would be put to bed in the observation and examination room. Thereafter the physician, having meantime withdrawn the friends into the history room and obtained an account of the patient's illness and past, would make a physical and mental examination, and decide whether she should remain in the care of a special nurse or be transferred to a bed in the reception ward.

So far as I observed, preliminary bed treatment, of varying duration, is almost universal in Scotch asylums and on the continent, especially in the German psychiatric clinics, where it is frequently continued much after the manner of a general hospital.

The colony idea is finding expression in small industrial groups and home villas, each completely equipped with kitchen and dining room. A farmstead for sixty working patients has been established on the large farm of 850 acres; an equal number of women are associated in a house connected with the laundry and sewing rooms. Eight dwellings, each a home

for sixteen congenial patients, are distributed here and there throughout the extensive grounds. A pavilion for twenty-four tuberculous patients occupies a sunny corner somewhat remote from other groups.

A pleasant drive some eight miles out from Dumfries took us to Friar's Carse, a magnificent property of 650 acres, recently acquired, where a half score of wealthy patients were passing their convalescence in a fine old mansion with many historic associations. Presumably, here will be wrought out an appropriate scheme for private patients, in harmony with that developing at Crichton for the indigent.

My attention was here particularly drawn to another feature, more or less common to institutions abroad, which seems to me to contribute much to contentment and stability in their service. The efficient employee, desiring family life, is allowed to marry, being provided with three or four rooms at a moderate rental, or rent free, inclusive of heat, light, milk and vegetables, and receiving an increase of about thirty per cent in his wages in consideration of boarding at his own table. The wife is not usually employed. Arrangements have been made at the Crichton Institution for thirty such families, some in large patients' buildings planned to afford independence, others in rows of six houses, and still others in cottages.

More than half the 750 patients in this asylum are private, paying as high as \$3,000 per annum in some cases. The rate of maintenance approximates \$5 a week, about double that of district asylums, but not excessive for its class of patrons. The large annual surplus is expended in structural improvements.

The Royal Edinburgh Asylum at Morningside is so well known through Dr. Clouston as to hardly require allusion, even to its luxurious Craig House and associated villas, rivaling McLean in the excellence of its provision for private patients.

At Aberdeen the Royal Asylum stands in the heart of the city, and has only limited acreage of land devoted to recreation of patients, beautiful grounds and gardens; but some twenty miles out a farm of 200 acres is tilled for the benefit

of the home establishment by 120 male patients. Here, in 1896, one of the earliest reception hospitals was erected for 230 patients of both sexes, organized and conducted after the general regime later described.

Passing from Royal to district asylums one scarcely notes the transition, save in plainer environment and reduced scale of expenditure, continuing acutely conscious of enthusiasm, enlightened methods and progressiveness.

This form of public provision was inaugurated by the lunacy act, to supplement Royal asylums or provide for lunacy districts to which they were not accessible.

The District Asylum is the analogue of our State Insane Hospital, holding a relation to its district similar to that of the latter to the Commonwealth. Both are essentially pauper institutions, the former hardly exceeding three per cent of private patients, and the latter eight per cent. No discrimination is permitted, the private patient paying the same rate of board as the pauper, and receiving no preference as to room, diet, attendance or privilege. The average capacity is one-half that of our institutions, the maximum not exceeding 900.

Assessment is made upon the lunacy district as a whole for land, buildings, furnishings, equipment, improvements and repairs, but current expenses are met out of receipts from constituent parishes, each supporting its charges at a rate of board based on the actual cost of maintenance and determined from time to time by the district board, with the approval of the general board of commissioners, therefore varying in different asylums and at different periods. During the last decade extension of accommodation for the insane has been practically confined to district asylums, whose patient population has increased 3,498, or 100 per cent. Traditional Scotch thrift is manifest in the adequate response of the public to so great demand. Overcrowding has not been allowed to supervene to any material extent, so business-like has been the method or so even and sustained the effort to meet the requirement.

It may be of interest to contrast results in Massachusetts, whose state institutions within the same period gained in average patient population 3,360, and in number of beds occu-

pied, about 2,700, beginning with marked overcrowding, and ending with an increased shortage of 660 beds.

The total expenditures of district asylums for land, buildings, furnishings, equipment, improvements and repairs amounted to \$6,928,912, or \$692,891, annually, or \$1,981 for each patient of increase in the average population, whereas our state institutions expended for the same objects \$2,996,798, or \$299,680 annually, or \$892 for each patient of increase in average population.

However, our efforts were spasmodic, and much more energetic during the last third of the decennium, so that time did not allow the expenditure of \$1,159,329 of the \$4,093,670 actually appropriated within the period for these objects, which include provision for 3,450 beds at a gross outlay of \$1,187 each.

The general conclusion may be fairly drawn from the above that Scotland spent considerably more than Massachusetts, proportionately, in providing and keeping up establishments for the pauper insane.

The quality of its construction is more substantial than ours, especially during the recent development of our colonies, but I gained the impression that the cheapening tendency is appearing there, particularly in the more densely populated centres.

The new colonies projected for the counties of Edinburgh and Aberdeen are estimated to cost about \$1,000 per bed. During the last three years 2,053 beds have been provided for at our different institutions at an average of \$616 for patients' buildings and their furnishings, or \$1,041 for all extraordinary expenditures, inclusive of repairs and improvements out of current income.

Turning to comparative cost of maintenance, we find the average weekly rate in district asylums to be \$2.36 for the decade, rising to \$2.54 for the last two years, indicating an advancing tendency which has been more than equalled here.

In conformity to the Scotch rule repairs and improvements having been eliminated, the corresponding rate in our five State Hospitals, Worcester and Medfield Asylums, was \$3.30 for the last two years, an excess of seventy-six cents over the district asylum rate. The chief components compare thus:

Food	\$1.010 there; \$.996 here.	..
Fuel .....	.235 " .335 "	
Salaries and wages.....	.678 " 1.269 "	
All other current expenses.....	.617 " .700 "	

Whole rate	\$2.54 " \$3.30 "
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The average prices paid by district asylums in 1902 were: Fresh meat, \$0.1125 per pound; fresh fish, \$0.0425; butter, \$0.2075; sugar, \$0.036; flour, \$4.25 per barrel; coal, \$2.83 per ton. Our greater expenditure for fuel is proportionate to the higher price of coal under normal conditions, raised during this period because of the anthracite coal strike. The relative number of employees probably does not differ materially in the two countries, but our scale of wages is about twice as high. Thus, nurses receive at the outset in addition to board and lodging, single men, \$12.50 per month; women, \$7.50; a carpenter, \$375 per annum; mason, \$400; engineer, \$500. The ratio tallies with the difference in cost of service.

The disparity in all other current expenses is eight cents a week in favor of district asylums, which may be offset by our more expensive care of private patients, who number thrice as many, yield six times the relative income, and raise the support rate twenty-two cents.

The excellence equals the economy of these institutions. They are pervaded by a kindly, democratic spirit, considerate alike of patient and employee, appreciative of the idiosyncrasies of individuals, and resourceful in avoiding incompatibility, restraint, seclusion and other forms of coercion.

Clinical and executive duties seem to chiefly engage the attention of physicians, so that scientific work is less prominent than in German asylums, where one always finds a well equipped laboratory, wherein the medical officers are seen busy in research of varied character. However, the average German staff is twice as large, and usually more stable and experienced. A quickening in this direction is perceptible. The laboratory of the Scottish Asylums in Edinburgh is giving a good account of itself, as you know. Maintained by voluntary contributions from Royal and District Asylums, it affords them facilities for special instruction and investigation.

Local laboratories are springing up, as at Woodilee, where

a very complete and satisfactory building for this purpose is being erected at an outlay of £2,500. Several times I noted the appointment of pathologists, junior assistants, and medical internes, after the custom of most of our hospitals.

It was gratifying not to hear, as a rule, the common complaint of an unstable and unsuitable staff of nurses. They appeared to be dealt with on a plane of mutual confidence and respect, to have moderate hours of service, comfortable living quarters outside the wards, and freedom, to a large degree, from restrictive regulations. Many are married and live with their families. They are trained in their duties and in general nursing, and stimulated to secure a diploma of proficiency from the Medico-Psychological Association by a wage increase of £5 on its achievement.

A growing enthusiasm for the care of male patients by female nurses was observed. Perhaps the most extreme exhibition of this and certain other tendencies may be seen at the Sterling District Asylum, at Larbert, whose activities are most inspiring. It consists of three units, close together, but essentially independent in operation,—a compromise between the block and segregate plans. All patients, both men and women, are under the supervision of two matrons and five assistant matrons. In the first group for 350 (50 per cent) men and women, who are employed in the central administrative departments, care is furnished by their respective sex, because male attendants are needed to direct and assist in the work; in the second, for 250 (35 per cent) sick, feeble, untrustworthy, or refractory patients, only a single male ward for 35 inmates is in charge of male nurses, who are, nevertheless, subordinate to the assistant matron. The same arrangement obtains in the third unit, or reception hospital, for 120 (15 per cent) new patients, who are always received here for first care and observation, and later distributed to appropriate wards in other parts.

The quality of these matrons is worthy of attention. They are all high-class women, refined, educated, graduates of general hospital schools for nurses, or otherwise trained in their duties. They are correspondingly well compensated, and move on the plane of officers, though in touch with every patient

and employee. Their elevating and leavening influence over the lower and usually weaker ranks seems to me invaluable.

The adequacy of night service here is notable. The saving in wages of women nurses on male wards is sufficient to allow a generous increment to the staff, which is half as large as the day corps. The ratio to patients is one to five in the hospital, and one to ten in other units. No inside door is ever locked, guaranteed by the little brass cover over every key-hole.

Single rooms are practically discarded, being only used by a nurse in special attendance upon some refractory patient who is temporarily withdrawn from disturbing others. I was profoundly impressed, both in Scotland and Germany, by the strong movement away from them, the contention being that patients in them are neglected, prone to form vicious habits, and to deteriorate mentally and physically. Restlessness and unclean personal habits are regarded as distinct contra-indications for their use. The average asylum does not have more than 10 per cent, and several were observed to follow the practice of Larbert.

Greater pains are taken to remove irritating causes, to avoid adverse reaction of one patient on another, to safeguard by special nurses, and to allay excitement by every means available, especially in Germany, by the warm, prolonged bath.

In these comments I have not essayed a complete or critical review of the Scotch lunacy system, merely a delineation of salient features, not always present nor approved, such as seemed to me indicative of modern progress and tendencies, not alone in Scotland, but in Massachusetts and elsewhere. They may be epitomized under three heads:

(1) The hospital idea, embodied at present in the reception hospital, which is destined to acquire full laboratory equipment for clinical aid and scientific research, and eventually to expand, in urban localities, into the full German psychiatric clinic in connection with the university or other teaching centre.

(2) The colony idea, expressed at existing asylums, in farmsteadings, industrial groups, home villas, and outlying farms, and in the new colonies projected after the Alt-Scherbitz plan. This is really a composite of reception hospital, closed asylum

and open colony, an aggregation of small detached units, closely associated and organized much after the fashion of the conventional institution. Ultimate development will effect a wider separation of these main components, retaining all, preferably, under one superintendence, but preserving the distinctive character of each; the evolution on the one side, of the curative hospital for treatment, research and teaching, and, on the other, the true colony, a village of industries and homes, with individual interests harmonized under central direction, of an advisory nature, so far as feasible.

(3) Community care, now facilitated by boarding in families and temporary treatment in unlicensed houses by a general practitioner.

Such is the official regime, presenting the forbidding aspect of legal and confirmed insanity; but a more hopeful phase is appearing in Edinburgh, as elsewhere, relating to the treatment of mental affections in the role of ordinary disease. Under the inspiration of Dr. Clouston and others this is likely to be soon attained at the Royal Infirmary, in a pavilion for the reception of mental cases under conditions similar to those of any special department, as for surgery, gynecology, etc., with a visiting staff of alienists and preservation of the voluntary relation of patients.

A PLEA FOR THE VOLUNTARY ADMISSION OF CERTAIN TYPES OF INSANITY TO INSTITUTIONS FOR THE INSANE.

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I make no apology for the plea that I am about to make before this Association for the voluntary admission of certain types of insanity to institutions for the insane. Neither do I make any claim to originality in presenting the claims of a numerous class of mental sufferers before such a jury of experts in mental science. The verdict will, of course, be in proportion to the justice of the cause and the ability of the advocate in presenting the claim. Should I fail it will not be the first time a good cause has suffered on account of a badly prepared case and an imperfect presentation of the facts.

I have been induced to prepare this paper largely because of an experience I have had during the past year with a prominent gentleman who voluntarily entered the institution which I have the honor to preside over. It was a great source of comfort to this gentleman, and his friends as well, that he was spared the humiliation of being examined and certified as a lunatic before gaining admission to the institution. It was a further source of satisfaction that he was admitted for treatment to an isolated hospital building proper and was not compelled to mingle with the ordinary rank and file of patients which constitute the population of a large Provincial or State Institution for the Insane. I was so profoundly impressed with this experiment that it occurred to me we had at last found a clue by which we might popularize our institutions with the public, and gradually root out that prejudice which has so long dominated the public mind.

It cannot be denied that a tremendous advance has been made in the care and treatment of the insane, but it is just possible we may be too easily satisfied with past achievement and decide that the field of progress has been sufficiently exploited and that there is nothing more to be done. I need not say that such a decision is not in keeping with the spirit of the age. In whatever direction we turn the great moral and scientific forces are bristling with effort for the uplifting of humanity and the amelioration of the condition of those on whom the heavy hand of affliction has fallen. Speaking from the ethical side of life the one outstanding thing that distinguishes the present from the past is the sacredness of human life, and the many agencies at work for its perpetuation and the advancement of human happiness.

As psychologists, and therefore co-workers in the field of mental and moral science, we may fairly claim to occupy a prominent part in ameliorating the sorrows, and easing the burdens of suffering humanity. Whether or not we are keeping pace with the sister sciences which are propelling forward at such a rapid pace the great civilizing forces that are yet to emancipate humanity from the ignorance and superstition of the past, is an open question. It occurs to me we have not done all we should have done to win popular confidence in our methods for the prevention of insanity, and especially in the treatment of incipient cases.

INCIPIENT INSANITY.

The plea which I set up as the subject of this paper is on behalf of Incipient Insanity, which includes a large class of neurotics under the head of neurasthenia. Many of these cases are on the dangerous borderland of insanity and if not properly cared for they drift across the Rubicon of hope and go to swell the maddening throng of acute and chronic cases in one of the State institutions.

It may be interesting to glance for a moment at the disintegrating social forces at work producing this peculiar type of mental alienation, and how it may be averted. The restless spirit of the age with its intense competition in every department of business and professional life, the mad struggle for

wealth, place and power, with an ever-increasing mental tension, are responsible for a large increase of nervous disorders which are sapping the energies of the present generation. That this weakening force will project itself into future generations with increasing effect is all too evident. Among women, with a more delicate nervous organization, this effect is even more apparent. The struggle to keep up appearance and win social recognition, along with artificial and extravagant modes of living, are responsible for many neurotic conditions bordering on insanity.

It is said on the highest authority of Americans themselves, that the original type of American is now extinct through a process of race suicide, the outcome of modern methods of living. It is said that a new race is being evolved, a more highly organized nervous type, bristling with energy and worshipping at the shrine of "mammon." What the outcome of this enormous expenditure of nervous energy will be on the generations yet unborn is for the scientist and philosopher to determine. As alienists, charged with the mental health of the nation, have we no counsel to administer, no arm outstretched to save, no balm in Gilead to heal? Unfortunately, advice and warning are largely thrown away under these conditions. It is only sad and bitter experience, which often comes too late, that is of any avail.

POPULAR PREJUDICE.

Disguise it as we may, there is still a foolish prejudice in the public mind against institutions for the insane. Insanity in the family is looked upon as a badge of mental and social inferiority, and all sorts of devices are resorted to in order to prevent its detection.

The disease is supposed to be largely incurable, and its hereditary transmission in families tends to exclude them from desired matrimonial alliances, as well as many positions of trust.

It is certainly not the business of the profession to minimize the danger of hereditary transmission, but rather to educate the public to a knowledge of those physiological laws of cross-breeding with sound stock, which make for the dilution

and final extinction of the insane diathesis. It is our duty to teach the public that insanity is curable like other diseases, and is successful in proportion as it is treated in the incipient stage. Like every other disease it has its origin in the violation of natural law, and may be either transmitted or acquired, or both together. It is only by popular education, side by side with tangible evidence of the good work achieved that we can convince the public that our institutions are something more than a great Valhalla for the reception of the mentally dead.

In this country an effort has been made to break down this prejudice by abolishing the name "asylum" and substituting for it the name "hospital." The motive is a worthy one, but experience proves that to merely juggle with a name will not conquer a rooted prejudice, the growth of centuries. It is by deeds, and not words, our popularity must come, "by their fruits ye shall know them."

The ordinary citizen who visits one of our large State or Provincial institutions with its hundreds of able-bodied men and women in the various stages of mental vacuity, is certainly not forcibly struck with the "hospital" idea. From the similarity of the patients, their dress, manner and general demeanor, the visitor is at once impressed with the pauper idea of custodial care and hopelessness of recovery. He is apt to regard them as simply the drift-wood of society that have been wrecked on the ocean of life, that have failed to adjust themselves to social conditions and become a burden first upon their friends, and secondly upon the State. In general terms that is the way our institutions are viewed by the general public.

To the hospital physician the query presents itself, why are these people not cured? The question is rather a puzzling one from the "hospital" standpoint. Then why call it a hospital if it is not discharging the function of a hospital? We may as well admit that the hospital function applies to a small minority of the inmates, but is capable of much greater elaboration if conducted along scientific lines in the treatment of incipient and acute cases.

Speaking from the etiological standpoint there is really no parallel between abnormal mental phenomena and physical

disease in a large proportion of cases. In the one there is a constant tendency to chronicity and recurrence, the result of hereditary transmission, while there may be no pathological cause whatever.

It is true we have the toxic or infective type, as in syphilis and alcohol, with a pathological cellular degeneration, but these form a small minority of the whole. There may be anatomical or histological defects, but that is congenital, and not amenable to treatment, and this is the reason why our institutions are crowded to the doors with chronic cases which require simply custodial care. Again, a large proportion of cases have reached the chronic stage before admission, with all hope of recovery gone. It becomes us then to educate the public to the necessity of early treatment. How is this to be done? We can at least simplify the method of admission in all incipient and acute cases.

VOLUNTARY ADMISSION.

Comparing the asylum with the hospital, a wide gulf separates them in the mode of admitting patients. In the one case the applicant has to undergo a medical examination by two physicians, and is lucky if he has not to appear before a bench of magistrates and judges also, before he fulfills all the requirements of law. In order to further humiliate him he may be forced to spend a few weeks in goal in the company of criminals, not because he has committed any crime, but for safe keeping until the formalities of the law have been complied with. Again, the moment the poor victim enters the portals of an asylum he is divested of all civil and political rights and becomes a dead man in the eyes of the law, and a ward of the State. Is it any wonder, in view of the rigorous method of admission, that the people postpone the ordeal as long as possible and only consent under the direst necessity.

There are many incipient cases not altogether "non compos mentis" who dread the idea of being examined and certified as lunatics. Many of this class would gladly avail themselves of institution treatment if they were spared the ordeal of certification and allowed to voluntarily enter a separate building or cottage for treatment.

We know that too often commitment to an asylum carries with it a badge of social degradation which haunts the poor victim through life, and too often the public are ready to endorse his morbid introspection and loss of social caste. He is looked upon as a dead branch of the family tree, and it may be evidence of further decay in other branches of the same tree.

In Great Britain this question is occupying a large amount of attention, and an agitation is on foot for further legislation looking to the relief of this class, by granting licenses to private houses, nursing homes and private asylums, for the treatment of certain types of insanity, by voluntary admission. This is practically a boarding-out system for the well-to-do classes, in charge of physicians and nurses trained to the work. It is evidence of a desire to avoid going to a public institution, with all that it implies. It is further evidence of a desire to receive special treatment as against congregate treatment in the public wards of an institution.

Few of our large State institutions are sufficiently equipped with scientific apparatus for conducting the best therapeutic methods in the treatment of even the acute and curable cases. Newly admitted cases are thrust in among the common herd, and too often lose their mental identity amid the general throng. One has only to pass through the crowded wards and witness the mental and physical inertia to be convinced of the utter barrenness of the mental therapy employed for implanting even the smallest germ of mental reconstruction. Surely it is a mockery of words to call this hospital treatment.

What is the remedy for this condition of things? How are we to cope with this surging mass of insanity? What methods should we adopt to increase the recovery rate, and at the same time lessen the ranks of the chronic cases which vegetate from year to year on the downward grade to hopeless dementia? Our hope lies in applying the best therapeutic treatment to newly admitted cases. I do not presume to speak with the wisdom of a Solon upon a subject which many of you are more capable of discussing than myself, but in my mind there should be a large receiving hospital specially equipped with every psychopathic contrivance for the treatment of new cases.

This equipment should include hydro and electro therapy, massage, physical drill, rest, treatment, forced feeding, mental recreation, etc. It should also contain a laboratory for making the various blood tests, urinalysis, and also the stomach and other digestive secretions. But not less important than all, it should have a well trained staff of physicians and nurses. The key note to treatment should be a differentiated specialism suited to each case. In that way we shall have hospital treatment in fact, as well as in name.

Large discriminatory power should be given to superintendents permitting patients to enter voluntarily. A large class of neurotics go about from one sanitarium to another seeking relief which they cannot find. The ordinary physician prescribes travel, change of air and scene, for these cases, but unless a proper selection of cases is made they often return more jaded and worn than when they started. The rest treatment is more often indicated—with proper medication and under hygienic conditions is attended with better results than in travelling to and fro over the earth amid the bustle and excitement of modern life.

In Scotland Dr. Clouston, of Morningside, is at the head of an agitation for the treatment of incipient and transient cases in an insane ward of a general hospital. Sir William Gowers is advocating another movement for individual care in private homes. The background of both movements is an effort to escape certification and the stigma which attaches to incarceration in a public asylum. It will be interesting to watch the growth of this agitation in the Old Land, for I am sure it will find little support on this side of the Atlantic. To begin with it is an attempt to protect the individual against a foolish, morbid prejudice and, at the same time place a further ban on the public institution whose function is to treat every form of mental alienation.

The treatment of any form of mental disorder in a general hospital is doomed to failure unless in charge of a mental expert and a staff of nurses trained to the work. We all know how panic-stricken and helpless the general hospital physician and his nurses are in the presence of a case of insanity, and how loudly they clamor for the removal of the case to the

asylum. It will be the same in private home care, except perhaps in very mild and harmless cases. To my mind the whole situation sums itself up as follows: Insanity can only be treated successfully in institutions appointed for the purpose and officered by physicians and nurses specially trained for the work. All other methods are mere make-shifts, and will end in disappointment, and perhaps disaster.

In conclusion, we should make a strong effort to popularize our institutions by convincing the public of how much we can do for them; that mental disease may be cured like physical disease and the one may be concurrent with the other; that successful treatment will be largely in proportion to the early opportunity of dealing with it.

Many of the mental disorders are functional rather than organic, but with delay in treatment there is always a danger of the formation of a morbid brain habit which tends to chronicity. Early removal from home environment is a *sine qua non* to successful treatment, where morbid habits of thought can be counteracted under the discipline of institutional life. There is little doubt that delay in early treatment is the chief reason why all our institutions for the insane are loaded up with such a mass of chronic cases that have passed beyond the regions of hope.

Ample provision should be made for all ranks and conditions, with sufficient isolation and other comforts to meet the social requirements of each. The pathway to the institution should be made inviting, and all red tape formalities and other consumers of valuable time should be abolished. The doors should stand wide open for the admission of all incipient and acute cases, and no case should be allowed to reach the chronic stage until science and skill shall have exhausted their best resources.

FEIGNED INSANITY: MALINGERY REVEALED BY THE USE OF ETHER.

*By Charles G. Wagner, M. D.,
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On the morning of the 14th of January, 1902, William H. Ennis, 32 years of age, a police officer in the borough of Brooklyn, City of New York, killed his wife, Mary A. Ennis, by shooting her with a revolver. He then went to a small hotel in the neighborhood, engaged a room, went to bed and was soon asleep. An hour or two later he was arrested and lodged in jail. He was indicted by the grand jury for murder in the first degree, was tried in May following, convicted of the crime as charged and sentenced to death during the week beginning July 7, 1902. His case was appealed but the sentence was affirmed, and December 14, 1903, was finally designated as the date of execution.

During the trial it was shown that Ennis had been a police officer for eight or nine years; that he was a hard drinker and possessed a bad temper; that he was married in November, 1900, and had boarded with his wife's mother for about four years prior to his marriage; that after his marriage he frequently came home intoxicated and was abusive in language and conduct toward his wife who finally left him about four months before the commission of the crime with her three weeks old baby, and obtained a legal separation. A large amount of expert medical testimony was offered by the defense in the attempt to show that the accused was suffering from paranoia; that he was delusional, epileptic and demented, and that he was unable to walk on account of lateral spinal

sclerosis, all of which conditions were declared absolutely incurable. Other testimony by well-known experts was offered by the prosecution to show that the accused was feigning. In court Ennis was incoherent and answered questions irrelevantly or not at all. He appeared unable to walk without assistance or to stand erect with his feet squarely on the floor. When he attempted to walk, at each step as he rested his weight to some extent on the ball of his foot, a violent coarse tremor agitated the entire leg. These abnormal mental and physical phenomena Ennis exhibited throughout his trial and, after conviction, on the way to the state prison at Sing Sing, N. Y., where he was confined until his execution.

From the testimony of the prison physician at Sing Sing, the warden of the prison and the keepers who came in daily contact with Ennis, it appears that throughout the following eighteen months during which he was confined in the prison, he manifested little if any interest in his surroundings or in outside matters; rarely asked questions, and when spoken to usually replied incoherently or not at all. His expression and manner impressed the prison officials as indicating dementia or imbecility, although they were somewhat suspicious that he might be feigning. During the entire period of his incarceration Ennis was never observed standing or walking without assistance; at all times he appeared to be unable to sustain his weight with his feet squarely on the floor, but when supported on each side he could walk or drag himself along on the balls of his feet, and while doing so his legs were invariably violently agitated by the coarse tremor previously referred to. As the time for execution approached the warden of the prison being in doubt as to Ennis' mental condition, requested the governor to appoint a commission to examine him. Governor Odell appointed as such commission Dr. George A. Smith, medical superintendent of the Manhattan State Hospital at Central Islip, N. Y., Dr. Daniel H. Arthur, medical superintendent of the Gowanda State Hospital at Gowanda, N. Y., and the writer. On the 1st of December, 1903, the commission met at the prison and after careful study of the records of the case examined Ennis. The prisoner was brought from his cell by two keepers to the office of Principal

Keeper Connaughton. As he entered the office he was in great agitation. His legs, and to a less degree both arms, trembled violently. He appeared unable to walk, but apparently tried to put his feet forward step by step as the officers supported him into the room. Apparently when he bore but little weight on the balls of his feet the muscular tremor of his legs became so great that he would have fallen if he had not been supported. He appeared unable to straighten his legs so as to bring his heels to the floor. When seated in a chair the tremor subsided and his mental agitation became less pronounced. The expression of his countenance was idiotic or imbecile, and he appeared not to know where he was or to realize the nature of the questions that were put to him. When asked his name he made no response until the question was repeated many times, and then only when spoken to sharply, he said, "Ennis." When asked his first name, after considerable delay, he said, "William." After being asked many times how old he was, he said "35," which was not correct, his age being 33. No further answers could be drawn from him during the examination, but when asked if he had ever received any injury to his head, he nodded quickly in the affirmative and pointed to a spot on his head where an old scar was visible. When asked why he trembled he made no reply, but to the question, "Are you afraid?" he immediately laughed and shook his head as if desirous of conveying the idea that the tremor was due to disease and not to fear.

Ennis frequently laughed during the interview in an imbecile manner and almost continuously moved his lips as if whispering to himself, but no sound of speech could be heard. He continually looked about the room with a vacant stare. At the close of the examination, when removed from the office to his cell he dragged his feet in the same manner as when entering, and exhibited the same tremor of legs and arms.

On the 3rd of December—two days later—Dr. Smith, Dr. Arthur, and the writer again visited the prison and saw Ennis. He was brought into the office by two keepers. His countenance wore the same imbecile expression and his gait was unchanged, but when questioned he manifested slightly increased intelligence. He gave his name more promptly, and when

asked about the injury to his head, he immediately raised his hand to the vicinity of the scar and said, "Doctors did that." When asked where he was, he replied, "In a hospital," and said that doctors brought him there. He did not seem to realize that he was in prison, that he had committed a homicide, or that he had ever had a wife. His hearing was tested and found good. His pupils reacted promptly to light and distance. Reflexes were normal except the knee-jerk, which was slightly increased. When shown different colored worsteds, he called red black and yellow red, but a few moments later when shown yellow again he appeared unable to say what color it was. When tested as to taste he answered promptly and correctly when given sugar, but shook his head when asked to tell what salt, acetic acid, and bromide solutions tasted like. A variety of other tests were made, and although Ennis showed somewhat more intelligence than on our first visit, he would not admit any knowledge of his crime. The examination lasted nearly two hours, after which Ennis was returned to his cell, two keepers supported him on his way to the elevator, and the same tremor of his legs was observed as when he was brought in. At this time the prison physician stated that after our first examination while visiting Ennis in his cell he had asked him why he did not answer our questions, to which he replied that he did not know who we were, and so he was not going to talk to us.

The results of our examination had thus far been to a considerable extent negative and, therefore, unsatisfactory. But owing to the contradictory character of the testimony at the trial and the irregularity of the alleged symptoms during his imprisonment, the commission were all of the opinion that Ennis was malingering, notwithstanding the absence of conclusive proof to sustain their convictions. It then occurred to the writer that an anaesthetic might be of use in obtaining the desired evidence—the idea being that if Ennis were malingering the fact would become patent when all voluntary and purposeful action should be in abeyance; accordingly, the commission met at the prison December 8th for the third time. The prisoner was again examined. His expression of countenance, manner, gait and general appearance were unchanged.

He was taken to the hospital operating room, placed upon the table and ether administered. He made no resistance and, although his breathing was observed to be shallow, he was soon apparently quite unconscious, but when taken from the table and with the assistance of two keepers made to walk he quickly revived and exhibited the same phenomena of gait, and the same expression of countenance as at the previous examinations.

In a few minutes he was again placed upon the table and ether administered until his muscular system appeared relaxed and consciousness was again apparently gone, but on being brought to his feet, although it was evident his mental faculties were somewhat clouded, his gait and countenance were unchanged. After a short delay Ennis was placed on the table for the third time. He made considerable resistance and declared he would not "take any more of that stuff," referring to the ether. Resistance was overcome and the ether administered until complete unconsciousness and thorough muscular relaxation were obtained. Just before this degree of anaesthetization was reached Ennis became talkative, profane, and abusive; his voice was loud and strong, and his language coherent, forcible and expressive; whereas, previously he had talked but little and always in a low tone. While still profoundly unconscious he was lifted from the table and stood upon his feet. As consciousness began to return, with a little assistance he walked across the room without difficulty or muscular tremor, and at each step placed his foot squarely upon the floor. He walked out into the corridor to the elevator and on reaching the ground floor walked to his cell without assistance. The plea of lateral spinal sclerosis was thus disposed of.

The change in the character of Ennis' speech during anaesthetization, his coherent, loud, profane language which was evidently a near approach to his normal expression, and the elimination of the alleged spinal disease satisfied the commission that the pretense of insanity was without foundation and report was made to the governor accordingly.

On the day following the last examination Ennis was visited by the prison physician, but he would not talk beyond say-

ing that he was sick and wanted to sleep. The next morning, however, he was very communicative. When he saw the prison physician approaching he immediately called out "I had all you fellows guessing all right and you never would have caught me only for the ether." He said he had been "under an awful strain for a year and a half" and that he would "rather go to the chair than go through the same experience again." He talked freely about the murder and put the blame for the crime on his wife's mother. He talked intelligently about his whole life, admitted the crime and had no hope of escaping the electric chair. He said that no physician or lawyer had posted him on how to act or walk, but that one day while standing at his cell door, before his trial and after the alcohol was pretty well eliminated from his system, his legs trembled so much that he could not stand and keep them quiet. This trembling suggested the idea, and all that he had to do, he said, was to exaggerate the shake somewhat and put on a "few fine touches."

The prison physician stated in a letter to the writer after the execution that Ennis proved to be quite a sensible fellow in his conversation, and that he went to the chair without showing any fear; in fact, that he was as brave a man as he had ever seen under similar conditions.

A MEDICO-LEGAL CASE OF WELL-POISONING, WITH A PLEA FOR A HOSPITAL-OBSERVATION LAW.

*By Henry R. Stedman, M. D.,
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Although this case has a certain interest of its own, it is chiefly important as exemplifying the difficulties that are sometimes encountered in examining a person's mental condition and the need there is of further legal safeguards to insure accurate medical decisions in obscure cases.

The writer was called upon by the district attorney to examine and make report, in conjunction with Dr. G. F. Jelly, with reference to the sanity or insanity of P. H. C., charged with poisoning a well with intent to cause the death of Mrs. S. T. Both the prosecution and defence agreed to abide by our decision.

The following evidence was furnished by the prosecution:

"On Monday, Sept. 29th, 1902, complaint was made to the police that the well of F. B., in the town of A., had been discovered to have a substance in it which resembled poison. As much as could be collected was analyzed and found to contain sugar of lead. C., who was at that time working in Worcester, was found to have left there Saturday afternoon, passing through South Framingham, where he purchased a large quantity of sugar of lead, saying that he wanted it for use on horses. He arrived at A. Saturday night, appeared at the house of his brother early Sunday morning and left some time Sunday. Living at the house of Mr. B. is his sister, Mrs. T., to whom C.'s mother had left \$2,400 several years ago in trust for C.'s children. C. has a number of times demanded that he should have charge of the money. There have been many disputes between C. and Mrs. T. over it, and he once said to her, 'This matter may end in a tragedy.' Sufficient reason being found, the police arrested P. C. on Oct. 7th. He said he went to A. Sept. 27th to get his trunk. The well in which the poison was found was an old one, from which the water was pumped into the house, and it was the peculiar milky appearance of the water that

came into the house that caused the investigation of the well and its surroundings. Considerable white powder was scattered on the stones inside the well and on the curb, and the water appeared of a whitish color.

"C. is a machinist by trade, a widower, 57 years old, six feet tall, and a powerful man. He was at one time principal of a high school.

"He was enlisted during the Civil War, but deserted, and went by the name of Claude Beverly for some time. His family are very much afraid of him, and his brother says he would not dare to go into the house alone with him. If not insane, he is apparently a dangerous man. The Commonwealth does not admit the person's insanity and is inclined to think it merely a case of deep hatred and determination to have his own way in regard to the money."

The evidence for the defence was gathered by ourselves and appears in our report which is here given as submitted, except for a few unimportant changes:

"The prisoner is a well-educated, intelligent man, who tells his story in an apparently straightforward, consistent manner, with no attempt at concealment of anything that will not actually incriminate him. He acknowledges freely that he had often tried to alarm Mrs. T., into relinquishing the trusteeship of a sum of money left for his children. At one time he carried a revolver, which he intended to use upon himself, in the belief that when Mrs. T. found that her refusal had driven him to take his life her remorse would lead her to give up the trust. It was suicide that he had in mind also, when he warned her that her conduct "might lead to a tragedy."

His grievance against her is of long standing. According to the statement of his counsel, C. consulted him more than two years ago, representing that Mrs. T., a second cousin, had had \$2,400 placed in her hands by his mother to be used for the benefit of his children, and he thought that he, their appointed guardian, should have custody of this money.

He showed intense feeling when discussing that phase of the case, and more excitement at each succeeding interview. He admitted that the trustee was honest and had not misapplied the money, although none of the funds had been used. He had never told her the children's needs or demanded money for them "because he had too much pride." He was told that it was too small an affair for him to be so disturbed about and that the judge of probate would never consent to appoint

him his children's trustee while he was their guardian, a fact of which it was most difficult to convince him. Although urged to approach her as a father should for the sake of his children, he repeatedly insisted that he would never ask her for a cent. His manner of talking and acting at that time seemed to Mr. R. unusual and not exactly normal. When a third person was suggested for trustee in her place he would reiterate, "I want no one but myself to be the trustee." He was very angry over remarks made by Mrs. T., that he could not take proper care of his children, and had many disputes with her. Mr. R. could see no adequate cause for his intense feeling in the matter. C. finally became dissatisfied and took the case out of his hands.

Mrs. T. states that she offered him \$50 of the money at one time, for the children, and later \$200. He refused it and demanded the entire amount that was in her keeping. She told him plainly that she would give him money from time to time, without question, whenever he said that the children needed it. She was afraid that in his avarice he might deprive them of it unless the children's wants were specified. He did not directly threaten her but told a neighbor that if she knew what was in store for her "she would drop the trust like a red-hot poker." Her brother had often talked over the possibility of having him sent to an asylum, as they had all become afraid that he would kill someone or burn the house, but their dread of him prevented this. They all thought him insane.

A medical practitioner in good standing who is a relative and friend of the prisoner, never saw any tendency in him to mental disease until after the T. affair had come up. He brooded and fretted over it, talking continually of his grievance. He lost his appetite and sleep, and the expression of his eyes changed. This physician became so concerned about him that he twice wrote warning letters to Mrs. T., and consulted with C.'s brother and others on the advisability of having him committed to a hospital for the insane.

A connection by marriage reports that he was always grasping and avaricious, allowing his desire to get and to keep to carry him to great lengths. Money questions always aroused an element in him that she had never seen in anyone else. He

once consented to having her ask Mrs. T. for money for the children, but withdrew his permission immediately afterwards. He was always very emotional and high-tempered. He once threatened to strike with a chair a woman with whom he had some difference about money. He is very impatient and cruel with animals, so much so that his wife had said that she could not live on the ranch with him. He had a high opinion of his own worth and felt that he was not properly appreciated. He was most fond of his children and they of him, but had been inclined to neglect them at times. When himself, he was agreeable and fairly easy to get along with much of the time. Shortly before his arrest his son, a lad of 17 now living with her, was greatly disturbed over his father's condition and thought that something was wrong with his mind. C.'s brother testified at the inquest that he talked about his wrongs at Mrs. T.'s hands day and night.

Measurements of the prisoner's cranium, by Dr. H. W. Miller, pathologist of Taunton Insane Hospital, show in one direction marked divergence from the normal skull. (See table below.)

The statements of the prisoner which bear upon his mental organization and condition are as follows:

His mother married a first cousin. They quarreled constantly and she finally left him forever. Later, she placed money that she had saved into the hands of a man who misappropriated it, and in the quarrel which arose in consequence she shot and killed him. For this crime she served a sentence of seven years in the State prison for manslaughter. At the time of the famous Lizzie Borden trial, and in consequence of brooding over it, she became mentally upset for a time. She was afraid that P. C. would kill her as (she believed) the girl had killed her parents, and had her door barricaded. In reality she had confidence in and affection for him, and he shows letters of hers which put this beyond question. She would also sit in the barn all night with a gun in her hands, on the watch lest some one should burn down her house. Many years before one of his brothers, whom he stigmatizes as a "degenerate," a dissolute, worthless fellow, had burned down the house in which he had an interest, for the insurance money. Another brother disappeared and has never been heard from since. Still another he considers as "miserly to the last degree, leading a wretched, miserable life, although worth \$50,000, and peculiar in conduct.

When a lad of 17, and while his mother was in prison, he enlisted in the Union Army, after changing his name, got his bounty and immediately deserted. Later, he returned \$75 of the \$100 to the State

treasury and endeavored to repay the government for the rest. Of this, he asserts, there is documentary proof. He was afterwards graduated at Cornell University, where he had taken a high rank. Since then he has always worked steadily, although at various callings: school-master, engineer, surveyor, farmer, and machinist, preferring the latter because "there was more money in it." He has earned a fair living, chiefly in Kansas. He was once arrested and fined for extreme cruelty to a cow and was once complained of to the police for punishing his children too severely. He has recently been having altercations with his brother over selling the house which they own in common. He admits that he is very suspicious by nature, that he has a quick temper, that "he loses his control easily and does things which he would not otherwise do," and that he has been considered "cranky" by people in general and perhaps rightly so, but scouts the idea that he has been insane at any time. He "would like to say that he thought he was not responsible at times for what he did, as it would help his case, but cannot conscientiously do so."

On Saturday, September 27th, he went from Worcester to A. "to get his trunk," passing through Framingham. He reached his brother's house late in the evening, but did not go in, as it was locked. He knew also that his brother was afraid of him and kept a loaded gun at hand. He got what sleep he could on the doorstep and at the railroad station. In the morning he asked his brother for his wheelbarrow with which to carry his trunk to the station. His brother immediately brought it from the B's, where Mrs. T. lived and where the well-poisoning took place. C. left for Worcester the next morning.

As to his guilt, while he denies most vehemently that he intended, much less attempted, to cause the death of Mrs. T. or anyone else, he says, "I will neither affirm nor deny that I put the sugar of lead into the well." He told no one of his intention to come to A. and his brother was much surprised to see him. Although he (C.) makes many other charges against his brother, he does not accuse him nor anyone else of committing the crime, nor does he express any suspicions regarding it. He admits that he is the only enemy that Mrs. T. has. He thinks it "not best to say why he made the hasty and unexpected trip" to the scene of the crime, and in the course of his denunciation of Mrs. T. makes the somewhat significant admission: "Under the same circumstances I would again act as I did then," also that "when he is accused of buying sugar of lead elsewhere than at South Framingham he will answer that question," but that he who swore that he bought it there was guilty of perjury.

In this connection it is proper to state, as indicating the intent of the perpetrator of the crime, that, as appeared at the inquest, much of the poison was found scattered in plain sight outside the well, and that the analysis of the water by Prof. Hills, of the Harvard Medical School, showed but $1\frac{1}{4}$ grains of the sugar of lead to a gallon of water. The smallest poisonous dose of this substance is five grains.

C. had sufficient knowledge of chemistry to know its poisonous properties. He had no feelings of enmity whatever toward any of the B. household, with the exception of Mrs. T., whom he had long wished "to pay off in her own coin" by intimidating her and thus causing her such anxiety and distress of mind that she would be glad to abandon the trust. He acknowledges that if he had gone to her and specified the needs of his children she would have supplied what money was needed. Against his brother he is very bitter, believing that he would be glad to see him punished, whether guilty or not, and would willingly testify falsely against him.

The injustice of Mrs. T.'s course rankled in his mind continually and he became so absorbed in thinking about it and how he could throw off her "domination" that he did not sleep, and, although a skilful mechanic, so spoiled his work that his wages were kept back by his employer. He felt that she and his brother "spoiled his life." The thought of suicide was constantly before him. He would walk about all night. He sought different kinds of work in the hope of shaking off the thoughts which possessed him. He felt that if it would only end in her giving up the trust he would willingly go to prison for life. It was his constant thought. "It went to bed with me and got up with me." "I cannot express how intently I felt on that subject." He does not, however, consider his feeling at all morbid. He fully believes there was and is a conspiracy between Mrs. T. and his brother to "torment him and break him down and ruin him in any way they can, when they could have settled the whole thing by putting it into some one else's hands." He thinks that if there is not a conspiracy there is at least a community of interest between them. His dominant trait, avarice, is lost in his intensity of feeling on the subject. He reiterates that "he does not want the money." That "he or his children would scorn to take it." "It makes no difference whether the amount is \$3,000 or \$3,000,000—it is the principle of the thing." He says, "I want that woman's foot off my neck, and it will come off." "She shall not retain her suzerainty over me." "She does not care if she ruins me and transmits the wrong to my children." "It is a matter of indifference to her whether I go to hell or not." "I would rather see the devil trustee than Mrs. T." "I know that she wanted to carry her malevolence as far as it could be carried." "If free I would never cease to make her give up the trust." "That desire would be more to me than the life of my children. I would rather see them dead than have them accept a cent from her or remain under her control in any way." "She is my destiny, my evil genius." "It would not be wrong for me to kill her, but I will not say that I would do it." "I feel as strongly about it as I would if my daughter were in a house of ill-fame." "The thought absorbs all my being." "It is my fixed purpose, *my duty* to throw that woman out of the saddle at any cost." "The idea is my religion. It is even greater than any affection for my family. For my own boy's sake I would not give it up."

He became greatly excited in the recital of his wrongs and tears came to his eyes. When the latter and more extreme statements were repeated to him verbatim long after his excitement had subsided, and he was asked if in the heat of the moment he had not said more than he meant, he replied that he had nothing to retract or modify and persuasion and argument were of no avail. At the last interview his excitement and the strength of his delusions were far more pronounced than at others. This was because he had just learned that Mrs. T. still kept the trust and had not, as he had hoped, given it up in consequence of the recent developments.

The salient features of the case, with our conclusions, are as follows

1. The family history with its record of murder, arson and other crimes, insanity, and strange and peculiar conduct, makes it very evident that the prisoner entered life and began his career handicapped with a strong, hereditary, predisposition to mental instability. In this connection it is perhaps of some significance that the deformity shown in his skull is of a kind that is regarded by the expert as a stamp of congenital degeneration.

2. His temperament—also an important feature—shows that many of these tendencies in his family have been reproduced in him. He is over-sensitive, emotional, quick-tempered, violent, cruel, more or less vindictive and very suspicious by nature. Moreover, although very intelligent and something of a "character" he is wanting in common sense and adaptability. He is inaccessible to argument and inclined to egotism. He has followed many callings but failed in all except in that of machinist, an employment that is not worthy of his abilities. His good traits, affection in general for his family, industry and temporary amiability do not prevent him from being very uncertain in his care of his children, and in his relations with people in general. Such a mental organization is recognized as the "insane temperament"—the paranoiac type of mind.

3. These natural qualities appear to have grown more pronounced with years, evidencing progress toward mental deterioration, and when the T. affair arose his mental condition

was ripe for the intense disturbance which followed, and in which his naturally morbid emotions and suspicions, as well as his deficient self-control and weak judgment, became morbidly intensified and passed the bounds of reason and sanity. The mental disturbance was even acute for a time as a result of brooding over his supposed wrongs. This was shown in his loss of sleep, appetite, interest and ability in work and almost entire neglect of his children. He was also extremely restless and talked continually of his grievance. His belief about Mrs. T., who, though uncompromising in her sense of duty as trustee, and most unconciliatory in her attitude toward C., had done no wrong whatever to him or his children, had (combined with his hatred of his brother) finally developed into actual delusions of persecution and conspiracy. That his sense of right and wrong was impaired in regard to dealing with her is plainly evident from his profound conviction that it was "duty," his "religion" to "dethrone" her, and to see that his children devoted themselves to righting this "great wrong."

Whether or not he committed the crime with which he is charged, or whether or not he only attempted to frighten Mrs. T. and the others—a fact that he does not deny—there is no question in our minds that his insane delusions had goaded him to such a state of desperation that he was no longer a free agent, and that an overt act in that direction would be the logical culmination of his irresistible and insane desire.

In our opinion therefore the prisoner was insane and irresponsible at the time of the commission of the crime, is clearly insane now, and is a dangerous man to be at large.

The prisoner was found by the court insane and was committed to the Taunton Insane Hospital, without trial.

CRANIAL CONFORMATION OF P. H. C.

	Head Measure- ments.		Approx. Dimen- sions of Skull.	Average in Males.	Physiological Variations.	Min. Max.
1 Circumference (Max.)	56.5	53.5		52.	48.5	57.4
2 Volume	1444.			1500.	1201.	1751.
3 Naso-Occipital Arc	35.5	32.5		32.	28.	38.
4 Naso-Bregmatic Arc	14.5	13.5		12.5	10.9	14.9
5 Binauricular Arc	34.	31.		32.	28.4	35.
6 Bregmato-Lambdoid Arc	13.6	12.6		12.5	9.1	14.4
7 Antero-Posterior Diameter	20.	19.		17.7	16.5	19.
8 Greatest Transverse Diameter..	15.	14.		14.6	13.	16.5
9 Length-Breadth Index	73.6			82.2	76.1	87.
10 Facial Length	12.	12.		-12.37	19.5	14.4
Distance between pupils, 6 cm.						
Ears well formed and regular. Right, length, 7.5 cm.						
Left, " 7.4 "						
Right, breadth, 3.6 "						
Left, " 3.6 "						

No pathological deformity of palate.

All measurements are given in centimeters. The approximate measurements of the skull are obtained by deducting the estimated thickness of the hair and scalp.

The one striking peculiarity is the length-breadth index which is rather below the usual physiological limit. The usual limits given are from 76.1 to 87. His cephalic index is 73.6. A skull with an index below 78 is regarded as dolichocephalic. The maximum circumference of this skull therefore shows a considerable degree of dolichocephalus. There are no asymmetries of the cranial bones nor of the face.

HENRY W. MILLER, M. D.,

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There is but little in this account of the case and our opinion regarding it to indicate its perplexing nature. Nevertheless, after repeated and prolonged examinations the situation resolved itself thus: Here was an intelligent man with an active mind, a family history abounding in crime, an intense, passionate and vindictive nature, a career in which minor criminal offences figured from time to time, and a mental or

ganization unstable it is true, but showing no evidence of actual insanity on repeated and prolonged examination. In fact, we were on the point of pronouncing the prisoner to be not insane and therefore responsible, but of sufficient unsoundness of mind to limit his power of self-control and to entitle him (especially in view of his evident intent) to the leniency of the court, when we decided upon still another interview. Then for the first time his actual mental condition came to the surface in the above denunciatory explosion springing from marked delusions of persecution and conspiracy and establishing his insanity beyond question.

Such an experience is not new to the writer nor, I venture to say, to most alienists who are familiar with medico-legal examinations and there is no question in our mind that an opportunity for hospital examination in obscure cases, where the subject can be under day and night supervision, can be examined by a staff of resident alienists and must live under the eyes of nurses trained to observe and report the talk, conduct, peculiarities, and habits of patients, would be of the greatest help in reaching prompt and accurate decisions and with less expense to the State than obtains under the present system.

Three classes of persons would be affected by such a law::

1. Patients who conceal their delusions. These cases are notoriously suspicious and persistently refrain from unburdening themselves to the examiners, so that many long interviews are often needed to gain their confidence sufficiently to elicit their false beliefs.

2. Persistent feigning can also be far more easily and quickly detected under asylum conditions and surroundings than in jail, owing chiefly to the difficulty a prisoner experiences in keeping up the pretense of insanity uninterruptedly and consistently (as he must to be successful) where he is watched day and night by careful observers. Most malingerers, as we all know, bungling and readily exposed, but it is only with the utmost difficulty that really adroit feigning can be detected by the expert in occasional visits to the jail.

3. Notorious capital cases. Here hospital observation as an adjunct to expert examinations must be of advantage in silence.

ing popular clamor and alarm lest the prisoner escape just punishment through what is termed the "insanity dodge." The delay involved also tempers public opinion, as does the evident intent of thorough investigation shown in a term of hospital supervision.

Another and most important point is the fact that the hygienic conditions, mental, moral, and physical, of close confinement and seclusion in jail are apt to impair the mental condition of those who are insane, and to our knowledge in more than one case have undermined the general health of the patient.

The state of Maine has enacted a law to meet this condition which has been in successful operation for many years and has since been incorporated in the statutes of Vermont¹ and New Hampshire. They are practically the same in each state and provide in effect that persons who are indicted for offences or are committed to jail on a charge thereof, whose plea is insanity, shall be ordered to the state hospital for the insane to be there observed and detained pending the determination of their mental condition. The medical officers of the hospitals as well as the judges in the states in which this provision prevails regard it as a useful and just enactment, and we regret that owing to the length of this paper the interesting opinions as to its operation and efficacy, that have been kindly furnished us by Dr. Sanborn and the late Dr. Foster, superintendents of these institutions in Maine, as well as that of Dr. Addison Thayer of Portland, cannot be introduced here.

So much for the merits of the plan. In the writer's opinion, however, the law just mentioned is too sweeping in its provisions and hardly applicable to the conditions prevailing in Massachusetts. In the first place, to send all offenders whose sanity is questioned to the ordinary insane hospital for observation would add a criminal element to the atmosphere of those institutions, which we have long been doing our best to prevent, and would still further arouse the just indignation of

¹The reader is referred to a valuable contribution on the subject, entitled "Medico-Legal Phases of the Vermont Observation Law for Criminal Insane," by W. D. Berry, M. D., in the *AMERICAN JOURNAL OF INSANITY*, Vol LIX, No. 1.

the relatives of the present inmates at such association. On the other hand, their removal to our asylum for the criminal insane would be unjust to many patients who have not led vicious lives and in whom the criminal act is only an incidental manifestation of the disease, cases which are explicitly exempted by the law from confinement there. It is important to bear in mind also that with very few exceptions all the experts in insanity in the states of Maine, Vermont and New Hampshire are on the staffs of the state hospitals. In Massachusetts it is quite different and if the same law were in force here it would tend to deprive the state and the insane of the services of a considerable number of experts in private practice who have had extensive experience in a great variety of medico-legal cases. Some of them are also public examiners for commitment of insane persons and combine with their knowledge of psychiatry familiarity with practical criminology. It would therefore be far more wise and just in our opinion to make provision for the occasional, important and doubtful case only, by enacting a law to the effect that at the request of the examining physicians the judge of the court before which a person is to be tried for whom the plea of insanity is made, may order said person into the care of the superintendent of one of the state insane hospitals to be there detained and observed until further order of the court. By this means any radical and injudicious overturn of the present procedure in these cases would be avoided and at the same time advantage might be taken of the best means available for securing their thorough investigation.

At the meeting of the Boston Society of Psychiatry and Neurology held in November last at which the foregoing paper was read, a committee was appointed consisting of Drs. Folsom, Cowles, Channing, Jelly, Copp, Ayer, and the writer, to endeavor to secure the legislation therein urged, with the result that the following statute was enacted without opposition or unnecessary delay and has already gone into effect:

Chap. 219, Section 11. "If a person under indictment for any crime is at the time appointed for trial, or at any time prior thereto, found by the court to be insane, or is found by two experts in insanity designated by the court to be in such mental condition that his com-

mittal to an insane hospital is necessary for the proper care or for the proper observation of such person, pending the determination of his insanity, the court may cause him to be committed to a state insane hospital for such time and under such limitations as the court may order."

INTRACRANIAL TUMORS IN THE INSANE, WITH A REPORT ON TWO CASES.

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Pathologists have generally agreed that cerebral tumors are occasionally found in insane subjects, when the clinical history is not suggestive of brain growth.

Enrich ("Two Cases of Intracranial Tumors," London Lancet, February 20, 1897) says that "intracranial tumors form but a small percentage of the cases occurring in asylum practice. Their comparative rarity has frequently been commented upon—more so, as the institution, which he represents, was the haven in which only sufferers from intracranial disease, or their results, were treated."

During the past few years several valuable contributions have been made to this subject. A review of the reports of asylum pathologists shows quite a uniformity of opinion as regards the percentage of cases of insanity, showing an intracranial growth after death. It would appear that the consensus of opinion is, that two per cent of all insane patients have a brain tumor. There are no statistics, however, to show whether or not the insanity was entirely dependent on the growth.

Owing to the difficulty in securing a subjective history, and, also, to the resistance often offered by the patient to the necessary examinations, cases of brain tumors in the insane are quite frequently overlooked or unrecognized during life.

A review of Blackburn's recent report on this subject ("Intracranial Tumors Among the Insane") shows that only seven out of the twenty-nine cases were diagnosed during the life

of the individual. Considering these conditions, it is not surprising that such cases are at times diagnosed as anomalous cases of paretic dementia, epilepsy, syphilitic brain disease, or more frequently conveniently relegated to the class of organic insanities.

Attempts have been made to associate the character of the mental symptoms with the situation of the growth. Although noteworthy work has been done in this line by Brammel (*Brain*, Volume XXII, 1899), Phelps (*American Journal of the Medical Sciences*, April, 1902), and others, there have been too many clinical contradictions to justify us in accepting their conclusions in entirety.

Vigorous (Abstract, *Journal of Nervous and Mental Disease*, Volume XXX, page 505), after a careful review of the opinions or writers on this subject, answers the question negatively. He believes that the psychosis may, or may not, accompany a tumor in a given location, and that the nature of the symptoms is independent of the nature of the tumor, and may be the result of accidental conditions. The author also concludes that "when a true psychosis is found associated with the cerebral tumor, the association is simply a coincidence.

The following two cases have some interesting points in common. Both patients were pronounced "insane" at the time of admission. The psychical condition of Case I was thought to be dependent on syphilitic brain disease. The mental symptoms of Case II were believed to be due to epilepsy. A short time after admission to the asylum, the diagnosis of "brain tumor" was made in Case I; but its exact site, which proved to be basal, was undetermined. In Case II a large subcortical sarcoma, involving one entire hemisphere, and extending to the opposite side, was recorded as an anomalous case of paretic dementia; but during the latter months of patient's illness a brain tumor was suspected. Both cases had a clear history of syphilis, and at the autopsy neither of them showed the characteristic lesions of luetic brain disease. Both cases also presented rather unusual mental symptoms, which are considered in the respective summaries.

Case I.—W. M. R. Aged thirty-eight; divorced; American birth; occupation, laborer; was admitted to the Eastern Michi-

gan Asylum, October 1, 1895. His family history was negative as regards insanity or any constitutional disease, which would bear on patient's trouble. Patient had always been of exemplary habits. Twelve years ago he had contracted syphilis innocently, which was followed by well-marked secondary symptoms. His present illness began four years previous to admission. Primary symptoms consisted of severe attack of vertigo, and were at times so severe as to totally incapacitate him. Occasionally he had attacks, during which he would perform his work (which at that time was that of a driver) automatically; and he also complained of severe headaches, which were general, and which would last for some hours. During the past two years the above symptoms have been exaggerated. He frequently lost his way, and occasionally was completely disoriented. This loss of orientation was coincident with severity of head pain. Symptoms rapidly progressed, and during the past year he has been considered "demented." One year ago he had a general convulsion, which was "epileptiform" in character. After the first convulsion he was much confused. Similar attacks occurred frequently, the average being about four per month, and seemed to add to his mental and physical enfeeblement. Five months ago he began to complain of blindness, and anaurosis was complete in three weeks.

Examination at the time of admission elicited the following facts: His psychical condition was one of enfeeblement, characterized by amnesic defects, indifference, and a considerable degree of confusion, which was thought to be secondary to the dementia. Physical examination was negative as regards any constitutional trouble, excepting symptoms which were referable to cerebral disease. The neurological syndrome was as follows: Equilibration was markedly disordered; gait shuffling, and suggestive of incoordination. The superficial and deep reflexes were markedly exaggerated. Pupils were immobile. Ophthalmoscopic examination showed a bilateral and pronounced optic atrophy, with distention of veins and large patches of choroidal atrophy.

During the first six months of his residence in the asylum, patient had twenty epileptiform seizures. Ten of these were

localized convulsions, affecting the left side of the face and corresponding arm, the left hand being involved in spasm. During these attacks head and eyes were deviated to the left side, and near the end of the attack slight lateral nystagmus was present. Loss of consciousness was not always complete, and no paralysis could be detected after the seizures. The general epileptiform seizures were characterized by profound coma, general twitching, without signal symptoms, and temperature involvement, the maximum temperature being 102 degrees. During all this time patient complained considerably of headache. A decided remission was noted in "head pains" for several days following the epileptiform attacks. During the early part of October, 1896, a left hemiplegia suddenly developed, which was spastic in nature.

Examination at this time resulted as follows: There was complete left hemiplegia, with involvement of left side of face. The left arm was in a condition of flexion, with adduction and slight flexion of left hand. The left leg was held in a condition of flexor spasm, with marked extension of foot. Paralysis was spastic in nature, but could be partially reduced by passive movements. The deep reflexes on the paralyzed side were markedly exaggerated, with a bilateral, patellar and ankle clonus—more pronounced on the paralyzed side. Sensory examination at this time was unsatisfactory, on account of the mental condition of the patient. Subsequent examinations, however, indicated that there were patches of anesthesia on the calf of the paralyzed leg, and on the extensor surface of thigh.

The psychical condition at this time showed considerable variability in symptoms. At times he was quite irritable, expressed much discontentment, and there was marked emotional instability. Amnesia was also present, and this continued during the entire course of illness. Patient continued to complain of headache, and this appeared to be general. Marked hyperesthesia of scalp was found over the left parietal region, and a pronounced tenderness on percussion was elicited over the region of the left frontal lobe. These symptoms were permanent, and were frequently elicited during the entire course of patient's illness. It was noticed at this time that patient

would frequently sleep for long periods, and could not be aroused. Active delirium occurred occasionally, which was coincident with attacks of cephalalgia. During these attacks of delirium there was marked evidence of both auditory and visual hallucinations. Patient would also complain of "water dripping from his nose and mouth." This sensory involvement was always present during the attacks of delirium.

Examination March 11, 1898, showed no pronounced change, excepting that spastic conditions in left arm and leg were more developed. Left leg was now held in a condition of slight flexor spasm, and left foot was in a state of talipes equino-varus. Patient's walk was now distinctly hemiplegic. No atrophy of paralyzed muscles could be determined. At this time he complained of severe headache, and located the pain in the parietal and frontal region of left side of the brain.

During January, 1889, a note is made that "The substance of many examinations is as follows: Tenderness to percussion over the right parietal region, in an area of a circumference of four inches. Lessened left hand-grip; muscles of left arm flabby. Comparative measurements of arm and legs show slight decrease of one centimeter in the left calf. The left foot is in a condition of talipes equino-varus. Slight spasm of flexors of leg, which can be reduced by manipulation. Movements of leg when in a recumbent position limited, and there is evident paralysis. Sensory examination shows hyperesthesia to touch, pain and temperature below left knee, more marked over muscles of calf. Walk is distinctly spastic and paralytic. Examination of reflexes: Exaggerated knee-jerks, left ankle clonus. Cutaneous reflexes were variable. Muscular reflexes, all over body, active."

In April, 1899, examinations resulted as follows: Tenderness over right frontal region, extending from two centimeters over eye, backward three centimeters, and covering a small area. Examination of eyes showed no marked differences. No disorder of facial movements. Tongue protruded straight. Examination of the arms gives the following measurements: Right and left 30, 30; 26, 26; 20, 20. Muscularity good. All movements possible. Left handgrasp weakened. Excepting this weakness of hand muscles, there is no paresis of arm.

Elbow and wrist-jerk active. Legs: Muscularity good; slight atrophy of muscles of left leg, resulting probably from disuse. Measurements: right and left, 51, 49; 34, 31; 26, 25. Movements of left leg restricted; marked weakness of flexors and extensors—drop foot. Knee-jerk of right leg appears easily exhausted; left leg exaggerated. Left patellar clonus; slight left ankle clonus. Plantar reflexes exaggerated. Other cutaneous reflexes active. No tremors noted. Sensory examination: hyperesthesia, evidently dependent upon general mental condition. There is possibly analgesia, comparative, in left leg, over calf muscles. This cannot be accurately determined. Gait: paretic and spastic, characteristic of paresis of left leg. There is slight transitory spasms of flexors in left leg, more evident during movement. Speech is correct in order and arrangement. Electrical examination shows no quantitative or qualitative changes.

Patient shows changes in personality, which occur irregularly. At times he is in a condition of elation; talks freely of remote events, and is happy and jovial. On other occasions he is fault-finding and irritable, makes unfounded complaints of abuse, and there is defective judgment and difficulty in concentration; on former occasions associations are much quickened; when the latter symptoms supervene there is at times considerable apathy. Excepting slight headache, with maximum intensity in right frontal region, patient complains of no "true pain." Examination at this time showed the first involvement of the special senses. This consisted of complete anosmia, which proved to be permanent.

During 1900, the symptoms were practically the same. Psychical changes were headache and delirium, and symptoms noted above occurred quite frequently. No change was noted in character of paralysis. Epileptiform seizures, which were now general in character, occurred at intervals, and were often followed by an exaggeration of mental symptoms. During September, 1902, patient became jaundiced, which rapidly deepened. Examination at this time was suggestive of hepatic cirrhosis.

In November, 1902, a note is made as follows: "Mental and physical examinations show the following: Mental char-

acteristics as detailed above, consisting of emotional instability, loss of self-control, and periodical attacks of furor, are unchanged. Physical examination: Hemiplegic symptoms are present, as noted above, with a slight increase in flexor spasms of legs. Otherwise there is no objective sensory trouble. Subjective sensations consisting of 'acro-paresthesia' are unchanged."

During the early part of October, 1903, it is noted that "mental enfeeblement has apparently increased, and periods of emotional instability are not so frequently seen. Patient appeared to be most of the time in a 'stuporous' condition, and at times it was impossible to arouse him. During the latter part of October, 1903, patient was for a week in a state of active delirium, and during this time experienced several severe epileptiform seizures. Symptoms of delirium continued quite active, and visual and auditory hallucinations were pronounced. Coma developed two hours preceding death, and rapidly increased. Patient expired while in a comatose condition. The immediate cause of death was supposed to be directly due to 'increased intercranial pressure.'"

POSTMORTEM TWELVE HOURS AFTER DEATH.

Examination of head: Calvarium shows some asymmetry, there being some flattening of vertex and an unusual development of both occipital protuberances; the right being more markedly affected. A small ecchymosis is noted beneath the left frontal protuberance, which is directly dependent upon a bruise. Upon opening the calvarium there is found to be an adhesion of the dura mater, which is stripped with difficulty. Pacchionian bodies are enlarged, with adhesions along both the petrosal and superior longitudinal sinuses. The brain is markedly injected, and accidental cutting into the ventricle causes a marked effusion. Macroscopical examination of the brain is as follows: Convolutional development appears to be normal, although there is marked prominence of hemispheres in occipital region, corresponding to asymmetry of the skull. Examination of the base shows a large tumor immediately beneath the left temporo-sphenoidal lobe and attached to the basal dura mater. Further examination shows that there is partial absorption of the left lesser wing of the

sphenoid, and an extension into the ethmoidal cells on both sides. The same tumor extended over the right crus, evidently exerting pressure. Considerable difficulty was experienced in dissecting the tumor from the bone, and all of the mass could not be extracted. Further examination of the brain was postponed, pending hardening.

Examination of the abdominal cavity discloses a suppuration of the gall-bladder, with a few stones, which were not impacted. Liver is retracted, and evidently cirrhotic. A section is reserved for examination. Examination of abdominal cavity is otherwise negative.

Pathological specimens consist of (1) entire encephalon, with tumor attached; (2) a portion of the tumor, which was detached from the brain growth and originated from the basal dura mater and lodged in sella turcica; (3) a portion of the liver.

PATHOLOGICAL REPORT.

One portion of the tumor of the brain lay in the median line, directly in front of the corpora mammillaria. On removing this, there were only slight fibrous, connective adhesions to the brain substance. It was found that the optic chiasma had been entirely absorbed, and microscopical examination of the tumor in this part failed to show any trace of that structure.

Following the growth over to what formed the largest portion, it was found to have grown into the brain substance on the other side of the lateral ventricle. The growth here measured forty-two millimeters across and was nearly round. After dissecting it out, it was found to have absorbed the brain substance up to, but not into, the lateral ventricle; the lining membrane of which had been carried in by the growth, until it was in partial contact with the inner wall.

The growth had also followed the line of the ventricle to its anterior end, and here the brain substance was only about half an inch thick. It had formed a sort of pocket here, and in this was a rounded, comparatively hard portion of the neoplasm. This was the only part that showed the cells in an undegenerated condition, and was probably the youngest part of the growth. After removal the neoplasm measured, rough-

ly, forty-two millimeters across, fifty-four millimeters in its longest diameter, and averaged thirty millimeters thick.

It is interesting to note that in no place had this growth infiltrated the brain substance; neither had it set up an acute inflammatory reaction as far as could be made out; although there had been some chronic irritation, which was plainly shown by the lining membrane of the lateral ventricle, in which there was no appearance of ependyma or epithelium; but a delicate fibrous tissue was all that could be made out. There were several bands across the cavity of the ventricle, at the anterior end; but they were soft, and almost gelatinous. The growth had not penetrated the ventricle at any point.

The portion in the median line, which had absorbed the optic chiasma, had also absorbed the floor of the third ventricle; but there was no adhesion to any part of the brain substance. The small nodules which had apparently been removed from the bone were examined microscopically, as well as the growth in various places, and the structure was found to be the same throughout.

MICROSCOPICAL EXAMINATION.

Nearly the whole of the tumor is degenerated, even the nuclei of the cells having become disintegrated in the part imbedded in the brain substance. There was, however, a small rounded mass, which was comparatively hard.

The growth is a round-celled sarcoma having a very large blood supply. The cells vary in size, some being much larger than others; and there are some multinucleated cells among them. There is no fibrous stroma, and the vessels run in direct contact with cells. There is a slight amount of fibrous tissue on the surface, forming a capsule; but this is not continuous, or well-marked, and in some places is entirely absent. The blood-vessels are mainly capillaries of large caliber; but there are some which may be called sinuses, and they are mostly full of blood, and this in the degenerated portion of the growth. There is no apparent reason for this degeneration; but it is a condition often found in sarcoma.

The condition of the liver was as follows: Glisson's capsule is considerably thickened. Throughout the tissue the hyperplasia of the interlobular, connective tissue, is very marked,

and in those parts carrying large branches of the hepatic artery, the increase is visible to the naked eye. There is evidence of active growth of this tissue all through the sections, and this and its extension into the lobules is apparent in some places. It is in fact an early stage of cirrhosis.

The capillaries are dilated throughout, and in many parts the liver cells are compressed, and smaller than normal. All through the sections there are small particles of brown pigment, mostly in the cells; but in some cases the capillaries appear to be full of them; they probably represent the bile. There is no appearance of chronic endarteritis in the large branches of the hepatic artery, as might be expected from the history. The small branches of the hepatic artery have become tortuous from contraction of the newly-formed fibrous tissues.

REMARKS.

The amnesia, irritability, stupor, inability for concentration, the increasing moral perversion, the marked defective self-control, and the rapidly alternating emotional tone, were thought to indicate a tumor of the frontal lobe.

The subsequent paralysis was believed to be due to involvement of the parietal lobe. This supposition was supported by the fact that, primarily, the epileptiform seizures were localized, and that the permanent paralysis involved the convulsed area.

A review of the clinical and pathological history of the case compels us to regard these symptoms as due, in great part, to the increased intracranial pressure, and not dependent on actual destruction of brain tissue.

Collins ("Treatment of Nervous Disease," page 193) says that psychical disturbances of variable character and degree, depend somewhat upon the location of the tumor; but more particularly on the rapidity of the development, and the intensity of intracranial pressure. When intracranial pressure develops rapidly, and is of profound intensity, there is almost always a marked degree of lethargy, stupor and progressive dementia.

Oppenheim ("Diseases of the Nervous System," page 608) says that focal symptoms are not of much local diagnostic

value, if the symptoms of general cerebral pressure are very pronounced.

The case is particularly interesting, as it demonstrates that intracranial pressure can be directly responsible for, not only the general symptoms of brain tumor, but also for "focal symptoms," which are commonly ascribed to localized lesions.

The pathological resume is as follows: The neoplasm evidently started from the membrane, somewhat about the center of the middle cerebral lobe, and grew in two directions; the main portion growing into this lobe, and carrying the line of the lateral ventricle before, so that the ventricle was reduced to a narrow slit. In fact, the two surfaces were in contact in some places with bands extending across the cavity. This part of the growth extended into, and "hollowed out" the middle cerebral lobe at the anterior end, so that there was only one-half an inch of brain left. The other portion of the neoplasm grew superficially to the right and into the sphenoidal, and as it grew, it entirely absorbed the optic chiasma. In no places had the growth infiltrated the brain tissue. It had simply caused absorption from "pressure," and had, as is unusual in these tumors, a definite capsule, and was composed of fibrous tissue, although very thin.

Case H.—C. L. C. Male, aged twenty-nine; single; occupation, railroad switchman; common school education; admitted to the Eastern Michigan Asylum December 20, 1898. His father was addicted to alcoholic excesses; mother of "very nervous" temperament. Patient has been addicted to alcoholic excesses for some years, and twelve years ago he contracted syphilis, for which he received anti-syphilitic treatment. His present illness began three months before admission. While trying to control a refractory horse, he suddenly fell unconscious. There is presumptive evidence that he was kicked by the horse. Patient remained unconscious for one hour, and gradually recovered. For four days succeeding the attack he appeared to be in a normal mental condition. He then had a seizure of similar character, but remained in a condition of stupor for several hours. Since that time he is not thought to have been right in mind. He has appeared suspicious of members of his family, and accused his family of

"conspiring against him," and making efforts to take his life. Actions also would indicate that he has visual hallucinations. There was persistent insomnia and slight loss in weight.

At the time of admission psychical condition was as follows: There was slight mental exaltation, with some emotional perversion. No signs of mental enfeeblement, however, were elicited. Patient had a good appreciation of condition, and was able to give a good and concise account of illness.

Physical examination resulted as follows: Knee-jerks were exaggerated, and there was bilateral ankle clonus. Pupils were active. Other organic reflexes were normal; cutaneous reflexes showed the usual variation.

Ophthalmoscopic examination showed cuppings in both eyes, with degeneration in nerve endings. Nasal margins of both discs were obscured by enlarged blood-vessels. Hyperemia was marked over entire retinal area. Co-ordination was good all over body, there was no paralysis, and examinations for disorders of equilibration and abnormalities of gait were negative. Examinations of respiratory and circulatory systems were entirely negative. Bodily functions appeared to be in a normal condition, and examinations bearing on the same were of negative value.

The following history of his trouble, which was verified by information obtained from others, was given by patient: On October 12 last, he suddenly fell unconscious, and continued in this state for half an hour. There was no premonitory symptom, no epileptic manifestations during attack—except unconsciousness—and no post-epileptic symptoms. After coma had passed off patient resumed his ordinary occupation, but four days after first attack, a second and similar attack developed. After this attack, patient was somewhat confused, but this soon passed away. Application was made for his admission here, but he was removed to Dearborn. During his stay in that institution he had two attacks, which he describes as follows: Both attacks developed without any assignable cause, and were characterized by slight dizziness—which was apparently subjective—and loss of sense of locality. Patient states that things looked strange to him, and although he often found himself in familiar places, he believed that this was

automatic. He also acknowledges that several times ideas have suddenly developed in his mind that he should do certain things. To a great extent these have been under his control. Excepting the four attacks mentioned above—two with unconsciousness, and two without—patient does not describe any abnormal symptoms.

During the first six weeks he was in the asylum there was but little variation in his condition. He at times complained of insomnia, but this readily yielded to treatment. No seizures occurred, and patient expressed himself as anxious to recover, and believes that his trouble was due to the development of epilepsy.

In February, 1899, the following note is made: "Last night he suddenly experienced a severe epileptiform convulsion, immediately succeeded by three of a similar character. These seizures were of the nature of grand mal, with signal symptoms of flexion of left arm, followed by deviation of head to left side, and conjugate deviation of eyes. The remainder of the body is affected in the following order: left leg, right side of face, right arm, right leg. Maximum duration of clonic stage, four minutes. Pre-epileptic cry present, with resulting stupor."

During the next three days four epileptiform seizures of similar character developed. Following these there was immediate loss of consciousness, and post-epileptic syndrome consisted of several attacks of frenzy, during which there was obscured consciousness, visual and auditory hallucinations, and patient expressed extreme suspicion, being fearful that preparations were being made to kill him. After attacks of frenzy, patient was able to tell of many events which occurred during his mental attacks, but was unable to remember the occurrence of convulsions. During the following week several convulsions occurred, which were localized in left arm, left leg, and left side of face. On several occasions an aura was declared, consisting of a "tingling sensation" in left arm, which appeared a few minutes before the seizure. Efforts to abort the attacks were unavailing. Preceding attacks patient complained of intense frontal headache, and after the attacks complained of considerable exhaustion. After this series of

convulsions there appeared to be slight paresis of left arm and leg.

Sensory examinations were always negative, and no involvement of the special senses was ever detected. Frequently after recovery from the seizures, he appeared quite depressed, and somewhat confused. At this time the patient was put on treatment of iodide of potassium, which he took in large doses, without production of iodism.

On March 31, 1899, the following note is made: "Succeeding a convulsion he remained in bed in a semistuporous condition for five hours, and was much confused. There is senseless repetition of words, with a tendency to echolalia. He is kept in bed. This confusion has continued with intermittency. Yesterday he suddenly became quite apprehensive; declared that poisons were placed in his food, and that certain individuals were endeavoring to murder him. These attacks of apprehension occurred at intervals, and were accompanied with semi-unconsciousness. During the interval he has talked quite intelligently about his condition, but showed but little realization of what occurred during the attacks."

For the next six months patient's condition was practically the same. Fourteen convulsions of a general type, and five convulsions, localized, and having the same character as mentioned above, were declared. After many of these seizures he was in a state of active delirium, the prominent symptoms being: the extreme and pronounced suspicion, visual and auditory hallucinations, and considerable motor activity. Complained at times of headache, which was general, and which was more intense before the occurrence of seizures. During all this time, while in a condition of delirium, and in the interparoxysmal state, there appeared to be fixed delusions of poisoning and persecution. The contents of the delusion of persecution showed no variation, and at this time was fairly well systematized.

In January, 1900, patient's condition was practically the same. Convulsions occurred in a series, and were now general and localized. During many of them the signal symptom was contraction of flexor muscles of left forearm, followed by contraction of the entire arm, and succeeded by involvement of

left leg and left side of face, with deviation of head to the right side, and conjugated deviation of eyes.

In June, 1900, it is noted that several attacks of status epilepticus were declared, during which patient was in practically the same condition as noted before. Epileptiform seizures, limited to the right arm and the right leg, have occurred. During attacks temperature changes were always noted, maximum temperature being 101° .

In November, 1900, a note is made to the effect that "Patient is absolutely helpless. Attacks of delirium occurred independently of the delusions, and status epilepticus has been declared on several occasions during the past few months. Symptoms of asthenia have often been pronounced, and speech disturbance, consisting of senseless repetition of words has been almost continually in evidence. Attacks of delirium occurred, but owing to mental enfeeblement and speech disturbance, the exact mental status of the patient could not be determined."

On December 3, 1900, after a period of marked physical failure, characterized by loss in weight and rapid emaciation, slight clonic convulsions of the left lower facial muscles and left upper arm group, developed. Patient appeared to be in a state of profound coma, with an increasing rise in temperature. Irregular, lateral nystagmus movements of eyes were present, with fine, clonic convulsions of muscles of face, and coarse, clonic convulsions of left arm, consisting of rapid flexion and extension at the arm and elbow. Symptoms of asthenia rapidly increased, and patient died from "apnoea," twenty-four hours after the declaration of seizure.

AUTOPSY.

The brain alone was examined. The dura mater was adherent over convexity of both hemispheres. Pia mater was adherent over both frontal and parietal lobes, and there were appearances of leptomeningitis. The brain was easily removed from its situation in the skull cavity, and excepting the conditions noted above, it did not appear to be abnormal. The weight of brain was fifty-four ounces.

Examination of brain, after hardening, showed a tumor, involving the entire left cerebral hemisphere, extending to the

right basal ganglia, and also involving the right temporo-sphenoidal, and about one-half of the frontal lobe.

REMARKS.

Microscopical examination of mass proved it to be a large sarcoma.

The mental condition of the patient conformed to that of epilepsy. The development of localized convulsions, and persistent headache, with choked disc some time afterwards, suggested a tumor, which was believed to be cortical.

The interesting factors in the case are the persistence of the fixed and systematized delusion of persecution, during the entire course of the disease; the speech disturbance; the attacks of delirium, which were active and severe; and the symptoms indicating "focal disease," which were evidently due to the rapid extension of the tumor.

Pathologically reviewed, it is not surprising, from the area of brain substance involved, that we should have multiform symptoms.

As in Case I, we are compelled to believe that the general symptoms, alone, were valuable, and that the rapidly changing symptoms, which might indicate a localized brain lesion, were due to the development of the growth, and the consequent involvement of different parts of the brain.

A CASE OF MORAL INSANITY WITH REPEATED HOMI- CIDES AND INCENDIARISM AND LATE DEVELOPMENT OF DELUSIONS.

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On Oct. 30, 1901, J. T., a professional nurse, about forty-five years of age, single, and born in this country, was arrested on the charge of murdering Mrs. M. G. at Cataumet, by poisoning, on the 13th of the preceding August. There was sufficient ground for belief that she had also fatally poisoned, within the preceding six weeks, an entire family of three persons who were related to M. G. The duration of the last illness of Mrs. M. G. was not over sixteen hours. The symptoms, which were similar in all the cases, were those of narcotic poisoning. M. G. went unexpectedly into a somnolent condition from which she could not be aroused, and coma and death soon followed. The relatives, who, as it was believed, met death at J. T.'s hands, were Mr. and Mrs. A. P. D., her father-in-law and his wife, and Mrs. H. G., their daughter, on all of whom she had been in constant attendance from the first.

Mrs. D. died on July 4, after an illness of eleven days. The illness was characterized by intermittent coma, often deep; in the intervals, drowsiness with occasional rousing up and partial consciousness; pupils contracted, but not firmly, with dulled sensibility to light; on one occasion improvement with rationality, succeeded by profound coma and death.

Mrs. H. G., who died July 31, was ill ten days or two weeks, with similar symptoms. She became dull and stupid, "moped around the house, and finally went to sleep and never woke up."

Mr. D. died Aug. 9, after an illness of seven hours in which somnolence predominated, and complete unconsciousness rapidly supervened.

They had all been in good health before the appearance of these symptoms. The nurse had for years been on an intimate footing with the family, who were attached to her and regarded her as one of themselves. Her services were offered at some suggestion of hers or theirs regarding trivial ailments, real or fancied. She gave enemata freely, and often administered medicines in that way.

These short and fatal illnesses, so much alike and of such an unusual nature, occurring as they did, one after another, in the space of a few weeks, finally aroused suspicions of foul play, which naturally centered in J. T., who had nursed and dosed the victims, and had only summoned the physician when they were at the point of death. That she was well aware of the sentiment against her there is no room for doubt, as she was not only pointedly questioned on the subject by several persons, but was actually told by a relative of one of the deceased that she was suspected of causing the deaths. Notwithstanding this, we find her at her old home only a fortnight later in L. in attendance on Mrs. B., an old lady and friend, who is suddenly and unexpectedly taken ill soon after J. T.'s arrival, and dies within forty-eight hours of the first appearance of a train of symptoms closely resembling those in the case of Mrs. M. G. The analysis by Dr. E. S. Wood, professor of chemistry at the Harvard Medical School, of the organs of four of the bodies, revealed the presence in each of more than sufficient morphine to cause death. In the liver of the other body, that of Mrs. D., he found very distinct traces of morphine. It was the only one not embalmed, and as it had been buried nearly four months the organs were in an advanced stage of decomposition.

One of these persons held a note of J. T.'s to the amount, it is reported, of several hundred dollars. She was also accused after her arrest of having stolen from three of the others sums of money which were missed after their deaths, but there is no proof of the truth of these charges. There was no suspicion of theft from the other victim, and in the search for a motive

in her case a threat of exposure was advanced by the relatives. While Mrs. B. was in the midst of her illness a detective called at the house, and in the room below the sick chamber questioned J. T. at length about the deaths of her last four patients, ostensibly with the view of fastening the guilt of the murder upon another person. Throughout the entire interview she was calm and self-possessed, showing no trace of anxiety, and talking freely and pleasantly. She made no attempt to implicate others. Not long after this she told one of her friends that a state detective had told her that she was suspected of the crimes and must prepare to defend herself.

She remained here about a month, entertaining her friends, in the meantime writing the physician of one of her Cataumet victims, "I have been taking my vacation and am willing to come back any time for a case." On Sept. 29 and 30, 1901, she made two attempts to poison herself, probably with morphine, the last an apparently determined one. An emetic given after an hour and a half was followed by return of consciousness. She gave later, as her reason for these attempts, that she was jealous and desperate because a man of seventy years, a connection of Mrs. T., was very attentive to one whom he has since married. As a final attempt to induce him to break off this intimacy, J. T. wrote him, from the local hospital where she was immediately sent, an absurd and abusive letter in which she accused him of being "the father of her unborn babe."

After leaving the hospital she made a visit to some friends in a neighboring state, of which she has lately written: "I never even thought of the investigation about the murder while at A. until I was arrested. I was having a fine time out there. I don't think I ever enjoyed myself as I did that fall. There was a jolly lot of people there, and I had the kind of time I like to have. I remember perfectly well the detective reading the warrant and saying, 'I have come to arrest you for the narcotic poisoning of Mrs. G.,' and even then I cannot think it made much impression on me. The funniest thing about it was that I was annoyed because the detective insisted on remaining in my room while I was getting ready, and I did not think it was very gentlemanly." She left the house, on her

arrest, with perfect composure and without the slightest remonstrance. On the long trip to the jail she was at first thoughtful, but later talkative and in good spirits. She talked freely to the officers about herself, and seemed entirely willing, then and at the jail, before seeing her counsel, to admit her guilt, and showed little or no realization of her situation, a condition of mind which she maintained throughout her imprisonment and trial. She was indicted for the murder of three of her Cataumet patients, but her trial was upon only one count, that of the murder of Mrs. G.

On March 3, 1902, about four months after her arrest, the prosecution and defense affected an arrangement whereby Dr. Geo. F. Jelly, Dr. Quinby and the writer were called upon to conjointly examine and report upon the mental condition of the prisoner with reference to her responsibility. Thus the question was practically submitted to a commission at law, which allowed the examiners free interchange of opinions and impartial sifting of all obtainable evidence on both sides. In fact, it resolved itself into a medical consultation on the diagnosis of a case of alleged disease. A more practical and satisfactory method, and one more in keeping with the principles of scientific inquiry, could not have been chosen, and its adoption by the attorney-general in such an important case would seem to be a long step toward abolishing, in criminal cases, at least, the opposite and customary practice which has done so much to discredit expert opinion.

The evidence upon which our opinion was chiefly based was in part furnished by the prosecution and in part collected by ourselves. Since the patient's commitment other facts antedating her arrest have been brought to light, and are here introduced for the sake of uniformity and completeness.

Her original name was Honora Kelly. In 1863, when about four years of age, she and a sister were placed in a foundling asylum by her father, an eccentric man who drank hard to the time of his death. She has two living sisters; one, a respectable and capable woman some years older who corresponds regularly with J. T., the other, a chronic dement in one of our state asylums. A third sister was adopted, but turned

out of doors when found to have been an illegitimate child. She led a dissolute life and died recently.

When about six years of age Honora was apprenticed to Mrs. T. on indenture papers and took the name by which she has since been known. She was given a good education, proving intelligent and quick to learn. Mrs. T. brought her up as a daughter, and she was "made much of" by the family. Until J. T. was a woman she was under good moral and religious influences, home surroundings and discipline, and had good associates, but her incorrigible propensities for deceit, falsehood and trouble-making, never absent from the first, proved too much to contend against, and her mother finally refused to let her remain longer in the family. Her impossible tales and her lies, often senseless and doggedly persisted in, despite positive proof of their falsity, are well remembered in the neighborhood.

At twenty-eight she began her career as nurse by four years of training and service in two general hospitals. There she showed much capability in the technical part of her duties. "She knew how to take good care of her patient, but did not like to work." Although not of attractive appearance, she had a pleasant manner, and was wonderfully clever in ingratiating herself with such patients and physicians as she wished to please, and remarkably skillful in escaping the consequences of wrong-doing and in implicating others. Her hospital life revealed her earlier tendencies, but aggravated in form and more serious in results by reason of the greater opportunity for their exercise. Among the nurses, also, she made friends. One of them states, nevertheless, that she was looked upon as "queer" and "peculiar" by her fellow-workers because of her unfounded and absurd suspicions, tale-bearing, slanderous gossip and consequent mischief-making, as well as her pleasure in inventing fabulous tales. In several well authenticated cases she attempted, by charges afterwards found to be false, to procure the removal of patients from the institutions, and succeeded in two instances. [In connection with one of these cases she wrote one of the patient's friends, who had met her only casually, stating that as he had made inquiry about her family (which he had not done), that she was quite willing to

tell him that her brother was in an insane asylum. She then went fully into her family history.] On the other hand, she is known to have prolonged the illness of favorite patients whom she wished to keep in the hospital by reporting symptoms that did not exist and falsifying temperature records. In other cases she reported false temperatures for no obvious reason. During her term of service at one of the hospitals many articles were missed, sums of money, stationery, aprons, uniforms, etc., and she was suspected of stealing them, but her friends spoke so well of her and she was so adroit that the suspicion went no further, in spite of the evidence against her. In administering medicines she was extremely reckless and frequently gave larger doses than had been prescribed. Even at that time she was often heard to say that there was no use in keeping old people alive (a favorite sentiment with her since). She was also fond of asking about poisonous drugs and their antidotes.

In view of the long wake of sudden and mysterious deaths of patients, which followed this woman throughout her career as a nurse, the following incident of her hospital life is at least worthy of passing notice. Miss D., a nurse, who had a slight illness, was put under her charge by day and was soon seized with sudden and extreme collapse. By much effort she was brought out of danger in the course of the night. When J. T. came on duty the next day the same symptoms reappeared. Another nurse was put in charge and the patient recovered. Some time afterward J. T. asked a head-nurse if she had heard that Miss D.'s condition had been due to poison.

She was at that time, and has often since been, suspected of the opium habit, because of her strange conduct. This is of course possible, but careful inquiry, as well as long observation of her at times when such a practice if previously indulged in to a great extent would have been revealed in the characteristic symptoms which follow sudden deprivation of the drug, have failed to show any such addiction. Moreover, her general conduct has been the same or more marked in situations where opium-taking was impossible. No tendency to sexual immorality or to drinking habits was ever noticed in her so far as we can learn.

She was discharged from both hospitals, in one instance just as she was about to graduate from the training school.

On leaving the hospital she took up private nursing, in which she was for many years very successful, inspiring certain families, not a few of them of high social position, with confidence in her skill and affection for herself, in spite of caution from physicians who knew her record. She was "greatly liked and trusted" by one family who unsuspectingly employed her after the death of one of their number at her hands. Experienced and able physicians recommended her for a time on account of her capability. Her own friends who know her better speak of her jealous and vindictive nature and bad temper. Her conduct was considered "strange" by not a few—just in what way they cannot specify. As to her propensities for falsehood one person reports: "She had an extraordinary facility for inventing lies and remembering the lies that she told others." Another: "She is a constitutional and clever liar, but I did not find it out until two years ago." Her passion for trouble-making for its own sake, by carrying tales, true and false, and insidiously fomenting enmities, for no apparent reason, though far less readily and generally realized than when she was at the hospital, came gradually to light. She borrowed money from patients or their relatives which she never repaid and, although she earned a good living, had many debts, which, however, gave her little concern. Occasionally, small sums of money and articles of clothing disappeared where she was employed, but she was rarely suspected and never detected in theft, nor, to our knowledge, directly accused of it. Accepting her guilt in this respect as proven, however, the fact that, except in a few instances, they were all petty thefts, and that in many cases nothing whatever was missing, plainly shows that money gain was not a controlling motive for her homicides. She undoubtedly prolonged some cases for profit, but on the other hand cut short many that might have proved equally lucrative, by poisoning the patient. She set four fires, but gave the alarm and helped vigorously to put them out. Two were set in the same house in order to frighten a nervous patient and retard her improvement. The others occurred in cottages of her friends.

Her general conduct toward the end of her career as nurse is suggestive of increasing demoralization. Her stories grew more sensational and preposterous. She caused, for example, some consternation by an utterly baseless report of a severe epidemic of typhoid in a neighboring seminary. She repeatedly maligned physicians who had employed her to other physicians and to patients, and even criticised the method of treatment in the presence of physician and patient. In spite of this, she retained to the last a number of friends who thoroughly believed in her.

We have also been able to satisfy ourselves that to crown this career of crime and disordered conduct, J. T. committed 20 homicides, 12 of which she admitted at the time of our examination. While in jail she made a list of 31 of her victims, for her counsel, giving names and addresses or other means of identifying them. Her statements regarding the 20 homicides are abundantly verified in 4 by the character of the symptoms and by autopsy; 12 are sufficiently proven by careful accounts of the train of symptoms magnanimously and freely given the writer by the attending physician in each case, which were in every instance but one characteristic of narcotic poisoning, and which they now agree to have been the cause of death; and 4 have been fully, and we believe faithfully, described by immediate relatives. Of the 11 deaths reported by her, above this number, 4 are yet to be investigated, but seem suspiciously like the others in causation; in 2 the whereabouts of the family are now unknown; while in 5 there is too much uncertainty as to the precise cause of death to warrant including them among her victims. Space will not admit of further description of these cases. The manifestations were strikingly similar. All but one of the cases—in which strychnia was plainly the cause of death—showed all or most of the following symptoms: drowsiness, full, slow pulse, contraction of pupils, stertorous breathing, cyanosis and slow respiration. A not infrequent feature was the subsidence of the coma for one or more intervals, and the patient's return to full or partial consciousness until finally put to death. A number of her victims were patients of one of her chief benefactors and includes one of his connections.

Among her effects a much-worn text-book on poisons was found which fell open at the chapter of opium.

At our first interview at the jail, she seemed for a time somewhat serious and distrustful, but soon became at ease and talked freely, volubly and intelligently. She appeared quite indifferent to her situation and seemed to regard our visits chiefly as pleasant breaks in her monotonous life. Her talk was more or less rambling and rather irrelevant. Her utter mendacity and disposition to speak slurringly of even her best friends and to make accusations against them, almost without exception—to praise one minute and blame the next—was very marked. We therefore soon found that we should be obliged to depend largely for our opinion upon facts obtained from others, accepting as true only such of her statements as were corroborated by reliable evidence.

She told many tales which we knew to be sheer inventions, among them, a story of her parentage, her alleged father having in reality lived in China for the two years immediately preceding her birth; another, of her horror of the dead which was so great that she sometimes fell senseless at the sight of dead bodies, even those that had died a natural death, the fact being that she had often laid out bodies with her own hands as a matter of course. Her attempts at suicide she narrated with glee, but admitted that the last was a serious one, and for the most part adhered to her story that jealousy had prompted them. She also stoutly denied that she had ever stolen anything or been dishonest in money matters, although admitting that she had failed to repay loans of money and that she had always been slack and "mixed up" in money affairs. At first she denied also that she was guilty of the homicides with which she was charged, but finally, and by no means unwillingly, confessed (although advised not to incriminate herself) that she had poisoned twelve patients and had made two unsuccessful attempts to poison others. She also admitted that she had set four fires, two of them at the residence of a patient under her charge. She told of the deaths with calmness, adding eulogistic remarks. The poisonous agent employed was, according to her story, always morphia, occasionally combined with a fatal dose of atropia. She could not remember the

details in all cases because, as she remarked, "poisoning had become a habit of her life."

[The facts: first, that her favorite method of administration of the drug was in Hunyadi water or by enemata because the drug could in these ways be given without the knowledge of the patient; second, that when possible she did not summon the physician until the victim was moribund; and finally, that she sometimes so combined drugs in kind and proportion that their resulting effect was an unusual and perplexing set of symptoms, made it most difficult and in some instances impossible for the physician to ascertain the true nature of the patient's illness. A request for an autopsy by the physician, moreover, invariably met with refusal through J. T.'s vigorous opposition to the suggestion. This accounts in large measure for her long immunity from detection, and it seems probable that if she had not, in her increasing mental demoralization, so far abandoned herself to her craving for poison-giving as to put to death with the same drug or drugs four patients in one family within forty days, many more victims might have been added to the list.]

In planning and carrying out her homicidal acts she was, she asserted, always calm and clear-headed. After administering the poison she always experienced great relief and went to bed and slept soundly. In one case she took to bed with her the child of her victim after administering the fatal dose [a fact], and in another she lay on the bed with the patient whom she had just poisoned "and had a long sleep." When it was too late to undo her work "she would work like a Trojan to save the patient," according to her statement, although in one case, at least, she took this opportunity to repeat the dose and make sure of her victim. In two instances she claimed to have been seized with compunction, and left the case after sending for another nurse. One of the patients was saved in consequence. For much of the time during the interviews she manifested a lack of seriousness and often a levity which was in marked contrast to what was to be expected of one who had been brought to confess so many heinous crimes. She understood clearly that she had done wrong, but did not manifest the slightest sign of remorse for her crimes, not, as it



FIG. 1.



FIG. 2.

Figs. 1 and 2—Appearance during first year at the hospital.



FIG. 3.



FIG. 4.

Figs. 3 and 4—Appearance during second year at the hospital, after a period of refusal of food due to delusions of poisoning.

seemed to us, through any spirit of bravado but for the reason that she did not comprehend the enormity of her acts; she professed total indifference as to the outcome of her trial except that she preferred the prison to the asylum. Electrocutation apparently had no terrors for her. "When I try," she said, "to picture it, I say to myself, 'I have poisoned M., my dear friend; I have poisoned Mrs. G.; I have poisoned Mr. D. and Mrs. D.' This does not convey anything to me, and when I try to sense the condition of the children and all the consequences I cannot realize what an awful thing it is. Why don't I feel sorry and grieve over it? I cannot sense it at all."

The question as to what prompted her acts was the signal for the shameless recital of a story of sexual excitement occurring in the presence of a dying person, as the motive—a statement which was all the more startling by reason of the absence of sexual immorality from her history, so far as could be ascertained. For a time we were of the belief that irresistible sexual impulse might be the real explanation of at least some of her acts, but on further examination, her representations as to the nature of this impulse and the conditions attending it were found to be so conflicting and so at variance with any known form of sexual perversion that feigning was suspected, and at the last interview, she admitted, as stated in our report, that she did not know why she killed these people, and that it was not from desire to experience sexual excitement. It was finally apparent that the story was a pretense throughout, concocted, and most unnecessarily as it happened, in order to prove her insanity and irresponsibility by reason of irresistible sexual impulse. There seemed to be a nearer approach to the truth in the statement that for at least the year past she had been tempted to do all sorts of criminal acts, and during the preceding summer especially, she had "let herself go." Among others she had strong impulses to set fires and could get no relief from her feeling of uneasiness but by yielding to the temptation. It is a fact that when once they were started, however, she worked her hardest to put them out. She finally said, in regard to her homicides: "I seem to have a sort of paralysis of thought and reason. Something comes over me, I don't know what it is. I have an un-

controllable desire to give poison without regard to the consequences. I have no objection against telling my feelings, but don't know my own mind. I don't know why I do these things." The last statement carried an air of truth with it in the manner of its telling and seemed to accord well with her general mental condition.

So far from having delusions of enmity or persecution, she spoke of most of her victims as her friends, and denied any hostility on either her side or theirs. In fact, all our efforts failed to reveal anything of the nature of delusion or hallucination in her mental condition at any of the interviews. Her behavior also was the opposite extreme of that of most patients with concealed delusions, whose reticence and distrust are marked features.

The main points in the summary of our opinion as to the prisoner's mental condition, which concluded our report to the attorney-general and counsel for the defence, were in substance as follows:

"1. The prisoner, J. T., comes of a family in which intemperance and mental weakness and disorder are prominent disease features.

"2. Her utter lack of moral sense has been evident from childhood in her incorrigible proclivity to falsehood, dishonesty, mischief-making, general unreliability and probable theft. The good moral, mental and religious training which she received in her youth resulted in no modification of her character, and were practically thrown away on her in that respect.

"3. Her moral insensibility is further apparent in the absence of sense of fear before, during or after the commission of her crimes, and of remorse, sorrow or genuine affection at any time. This defect is even more forcibly shown by the fact that her chief victims were her especial friends.

"4. Her lack of any appreciation of her situation, her levity under such circumstances, and her inability to realize the enormity of her deeds are strong evidences of mental weakness.

"5. That an irresistible propensity propelled her to crimes of arson and murder is shown by the great frequency and va-

riety of such acts and her continuance in them, regardless of consequences.

"6. There is an absence of any apparent motive for her criminal acts in some cases, and inadequacy of motive in many of the others. This is shown in the total lack of evidence of pecuniary gain or satisfaction in revenge as a rule, except minor thefts and transient enmity. These would be powerless with sane criminals as incentives to habitual homicide.

"7. The prisoner's disease-history and present mental state correspond with a well-recognized form of mental disease of a moral type due to congenital degeneration, in which there may be little or no intellectual disturbance that is apparent to the ordinary observer.

"Therefore, we are of the opinion that she was insane and irresponsible at the time of the homicides with which she is charged, and is so now; that, her disease being constitutional, she will never recover, and that if ever at large again she would be a constant menace to the community."

The salient features of the case which indicated more especially irresponsibility were: lack of moral understanding, of natural feelings and of the ordinary motives for conduct including criminal acts, also the general absence in her of sufficient self-control to restrain her from crime, and her disregard of consequences as shown, for example, in continuing to poison patients in full knowledge that her guilt in other recent cases was suspected; by her desire to confess her guilt at the outset; her indifference to her fate, etc. These facts seemed to us to evidence her inability, both to help doing what she did and to be affected by punishment, conditions which are the best tests of accountability.¹

The results of the anthropometrical measurements and physical examination of the patient, by Dr. H. W. Miller, pathologist of the Taunton Insane Hospital, are as follows:

Physical examination.—Height, 5 ft. 3 in.; weight 166½ lbs.

A well developed and well nourished woman. Hair black, streaked with gray. Complexion somewhat sallow.

Craniometric examination. — Circumference of head, 51.8 cm.; antero-posterior diameter, 17.8 cm.; greatest transverse diameter, 13.6 cm.; cephalic index, 77.6 cm. (slightly dolicho-

cephalic); naso-occipital arc, 31.5 cm.; bregmato lambdoid arc, 11.8 cm.; binauricular arc, 31.5 cm.; binauricular diameter, 11.8 cm.; facial length, 11.7 cm.; mid-frontal diameter, 13.5 cm.; breadth between pupils, 6.6 cm.; length of ears, right, 6.4 cm.; length of ears, left, 6.5 cm.

These measurements are all well within physiological variations.

Ears, detail well defined without stigmata.

Eyes, brown, palpebral fissure of normal width. No limitation of normal field.

Palate, low and broad but symmetrical.

Nose, no deviation or anomaly.

Teeth, false set in upper jaw, those in lower jaw regular.

No facial asymmetry.

Extremities: Symmetrical. Forearms, 40.2 cm. from elbow to tip of middle finger. Middle finger, 10 cm. on both hands, last phalanx of thumb 3 cm. on both thumbs. The little finger on each hand is flush with the last joint of the third finger. Finger nails normal.

No general body anomalies.

Special senses: Hearing acute; smell and taste normal; sight unimpaired; color sense keen.

General sensory condition: Examination of tactile, pain, pressure, and muscle sense offers no abnormality.

No errors of motility.

No trophic disturbances.

General feeling of well-being.

Reflexes: Show nothing of significance. Knee jerks sharp, normal plantar flexion, pupils equal, regular, react promptly, directly, and consensually.

A few tremors of tongue and extended fingers were present at time of examination but were transient.

Respiratory and circulatory systems reveal nothing of note.

Abdominal organs healthy.

Menstruation irregular for two years (every two weeks). Previous to that every fourth week.

Whatever view may be taken of this remarkable case, there can be no question that the moral monster thus far depicted is a striking illustration of so-called moral insanity, a condition

described in most works by recognized authorities, from Pritchard to Kraepelin and Wernicke, as a probable form of mental disease or defect. Its existence as a definite morbid condition has been repeatedly questioned; and its name criticised as inadequate and incorrect. "Moral insanity," however, has so far held its own that all alienists of to-day recognize that the term means a certain condition or kind of mental abnormality which is *sui generis*. It fits no other form of mental unsoundness. The progress of psychiatry has seen so many nosological terms discarded that it is remarkable that "moral inanity" should remain and flourish, thus demonstrating its practical utility as a term and its real value as a morbid mental condition. "Moral imbecility," a more accurate designation in some respects and in use by certain authors, apparently has not been found sufficiently descriptive of every grade of moral lunatic to secure general adoption. The true understanding of moral insanity has been greatly obscured by confounding it with purely symptomatic conditions, syndromes and stages of other forms of insanity; for example, the moral obliquity unaccompanied by apparent intellectual perversion which sometimes occurs as a distinct stage of dementia praecox, or as an equivalent of the "maniacal" phase of manic-depressive insanity, or as the prodromal stage of general paresis.

Moral insanity belongs to the group known as insanities of degeneration, and is better termed degenerative insanity of the moral type. It should be exclusively reserved to designate a congenital, primary, constitutional and permanent mental condition affecting the moral nature and unassociated with *evident* intellectual impairment. These patients have good memory and understanding, ability to reason and contrive, much cleverness and cunning, and a general appearance of rationality, coexistent with very deficient control, absence of moral sense and human sentiments and feelings, perverted and brutal instincts, and propensities for criminal acts of various kinds which may be perpetrated deliberately and cleverly planned, yet committed with little or no motive and regardless of the consequences to themselves and others. This latter point is important as indicative of a perversion of the fundamental in-

stinct of self-preservation (Kellogg). In their general conduct, also, these individuals are rarely influenced by the same motives that govern sane people, whether criminals or not, and it is often difficult to see what the motive is. They commit crime for crime's sake. As Esquirol truly says: "Crime is a means for the criminal and the end for the lunatic." In J. T. most of the classic manifestations of the disease are typically and faithfully reproduced. That none of the physical stigmata of degeneration should be present is noteworthy but not exceptional, as Lombroso,² for example, finds anomalies of the cranium and physiognomy absent in 58% and 64% of moral lunatics, respectively. Of that distinctive and negative feature of the disease, the almost complete absence of intellectual impairment, Hack Tuke³ goes so far as to say: "It is perfectly certain that it may be practically impossible to detect the intellectual flaw, and yet a physician may be driven to decide that a person is insane," and it is a recognized fact that, while a few of this class fall short of the average individual in intelligence, many are fully up to it and a limited number even surpass it.⁴ Others urge, and our experience inclines us to agree, that careful investigation will always reveal intellectual involvement in genuine cases, sooner or later, and such patients certainly share some traits in common with the imbecile; witness their imperative and characteristic propensity, which seems to be a necessity from which they cannot escape, for telling purposeless lies and, like children, inventing fabulous tales. This is marked in J. T., but still more in this line of mental defect is her innate and irresistible bent for trouble and mischief-making which she finally carried to such an extent as to deliberately alienate her friends and benefactors among physicians—a weakminded senselessness of conduct which showed fatal disregard of her own interests. If her friends were blind to her glaring faults and dangerous propensities it is hardly to be wondered at that they should fail to recognize that underlying "intellectual defect [in moral insanity] which," to quote Westphall, "is of a peculiar kind, is often concealed under a mask of perverted moral sense and requires time and patience on the part of the physician for its detection." J. T.'s fundamental intellectual weakness is fur-

ther and strongly emphasized in her hospital history, as will be seen.

But in what respect this case and others of its class differ from mere criminality is, of course, the main question. We can, at the start, readily eliminate the occasional criminal, the criminal by passion, the habitual, professional criminal; but to differentiate between the morally insane and the instinctive criminal, especially in the light of Lombroso's exposition of their analogy, is a difficult matter. It is this question that is and always will be a battle ground for the criminologist, the alienist, and the jurist, in spite of Lombroso's conclusion that both views are right and that they are one and the same thing. To our mind the very term implies a mental flaw, for what is instinctive criminality but perverted instinct, the very nature of which has made these persons lifelong enemies to society, and has rendered impossible a natural manner of feeling and acting, to the extent that in spite of good education and environment, habitually wrong conduct and actual crime become right to all intents and purposes and the ruling principle of life? It seems to us to resolve itself into a question of degree, and if Lombroso and his school should gauge instinctive criminality by the proportionate extent in each of these individuals of ordinary crime and culpability on the one hand and of mental defect and perversion on the other, wide differences would certainly appear which would compel them to classify many as indubitable criminal lunatics, and others as mere criminals, leaving an intermediate or borderland class whose condition cannot be satisfactorily differentiated. This is very evident in the enumeration by the great criminologist of many and marked symptoms which he admits that subjects of moral insanity share with those whom he acknowledges and classifies as insane criminals.

No absolute rule can be laid down by which we can differentiate between moral insanity and moral depravity, and there is no other disease in which the study of *ensemble* of its manifestations is so important. One may single out separate acts or sets of acts of a subject of moral insanity, and see in them only the manifestations of ordinary criminality. It is only when

these are viewed in their entirety and in relation to the heredity, invironment, education, social status, mental and physical organization and disease-history of the individual himself that we can decide how far his acts are under his control, and whether or not he is insane and irresponsible. It would be as questionable to label and treat as insane certain of the least pronounced subjects of this class as it would be wrong, both ethically and scientifically, to stamp as merely culpable criminals, and to send to prison the extreme and typical ones like J. T. The former, whose condition approaches more nearly the borderland of sanity, are for that reason more susceptible to punishment and other incentives to right conduct. They bear prison life well and are none the worse for the discipline. The well marked, distinctly pathological cases, however, are for the most part turbulent, crafty and unmanageable in the extreme, cannot be affected by punishment, greatly interfere with the discipline of others and are the despair of prison officials. Because of their defective control and susceptibility to criminal impulses, the associations and punitive measures of the prison also tend to make them deteriorate faster and to grow more intractable. The ordinary hospital for the insane is equally unsuitable for them, as they unsettle and excite their fellow patients and interfere with their management and improvement. Besides, association with criminals adds another terror to insanity. The special asylum for the criminal insane is, therefore, the only proper place for them, and it is still another argument for their insanity and irresponsibility that every criminologist advocates such confinement for them with this, the worst, class of the insane. There is, unfortunately, no special provision in Massachusetts for the care of female criminal insane, as their number is so small.

On June 3, 1902, J. T. was tried and found not guilty by reason of insanity, and thereupon committed to a state insane hospital for life. Her attitude at the trial was more that of an interested and appreciative spectator than of a prisoner on trial for her life.

Through many visits to the patient during the past two years and free access to the records of the Taunton Insane Hospital where she is confined, we have been able to follow her

case, which has undergone a striking development, as will be seen.

On her admission she talked freely about herself to the hospital physicians and, although she showed her inborn tendency to deceit and falsification in many ways, the fact that she had no longer anything to gain by misleading others with regard to her mental condition gives a certain weight to the most consistently maintained of her statements. She reluctantly acknowledged, as she does to-day, that she poisoned 31 patients. She would not say that she was not insane but wished to know what her insanity consisted of. "I don't appear like these other patients. I can read a book intelligently, I don't have bad thoughts, so I don't see where moral degeneracy comes in." When asked if she had noticed any change in disposition in recent years she said: "No; I feel absolutely the same as I always was. I might say I feel hilarious, but that may express it too strongly." As to the feeling of fear, she replied: "As far as I have any knowledge of that feeling, I never showed it. I cannot recall any time that I was frightened. I used to be the wonder of my mother. I have never felt it throughout this affair." She has certainly never been affected except pleasantly by sudden explosions or threats of patients on the wards, from the first.

During the first year of her life at the hospital she was, as a rule, sociable, quiet, cheerful, amiable and spasmodically helpful, and spent much of her time in reading. The change from the seclusion of the jail to the more active life of a large hospital ward interested her, and the air of discipline was effective in temporarily repressing her tendencies. In this period she grew fat, was in excellent physical condition, and wrote her sister: "Just think, I've been here a year and find myself fond of the people and warmly attached to the place in some ways. Yes, we are well cared for, kindly and considerately." She soon developed a fondness for the company of the patients, especially the most demented, in preference to that of the nurses.

The following statement by Dr. J. P. Brown, the Medical Superintendent, is the hospital record of April 22, 1903, about a year from the time of her commitment. It practically repre-

sents the opinion of the entire medical staff as to her condition at that time:

"My study and observation of J. T. since she has been in the hospital gives me the opinion that her mental disease should be classed as moral or affective insanity. She seems to me to be wholly devoid of moral sense, or a clear apprehension of what is right or wrong as to her relations to other people or to society. In all my conversations with her respecting the homicides, which she freely admits, she has expressed no remorse, regret or sorrow for any of them, but rather a sense of pride and satisfaction that the number was so large as to give her distinction above all other poisoners whose histories are known.

"This lack of pity and sorrow for others in trouble or distress has been evident whenever any difficulty has occurred on the ward between patients, or between a nurse and patients. At such times she has manifested a good deal of glee, and laughed like a silly child, but never has expressed any sympathy or pity for the patient or person in distress or trouble. Trouble or pain for others seems to excite in her merriment and joy instead of sorrow.

"In her association with other patients she has exhibited a special fondness for the demented, and especially for one who has openly practiced self-abuse; and once she got into bed with her after the patient had been put to bed for the night.

"In speaking of the homicides, she says that at the time she committed them she was not conscious of committing any crime or doing any wrong for which she should be punished; that the thought of doing wrong did not enter her mind, and gave her no concern whatever; and at the present time she apparently has no comprehension that the decree of the court in committing her to the hospital was right and just, and must be obeyed; and she asks for her freedom as though it could be granted on the same basis as that of any other patient.

"Recently, during the past three or four months, she has seemed more moody and emotional, either depressed or exhilarated at short intervals, and has exhibited less self-control, and with it she gives one the impression that her mind is weakening, and that she has less mental grasp of past and

present events, and of her relation to her surroundings. Of this she seems to be painfully conscious herself. She has been observed to be laughing immoderately to herself, and when it is noticed by others she blushes as though she would conceal it, and seems confused.

"The weakening of her mind as time goes on is what is to be expected, and will probably continue. In every case of moral or affective insanity there must be more or less impairment of what are called the intellectual faculties in distinction from the moral, especially reason and judgment, to decide ethical questions presented to the mind, otherwise the moral obliquity and perversion would be controlled, and the criminal act averted.

"From my examination and observation of her since she has been under my care, and my knowledge of her previous history as made known to the court before her sentence, I am of the opinion that she is insane and irresponsible, and that her mental disease, resulting as it probably does from ancestral vice and degeneracy, which her family history so far as known clearly indicates, is incurable."

Even at this time an undercurrent of suspicious thought came to the surface in doubts of the intentions of people toward her. She even wrote her sister in Chicago: "Sometimes it strikes me you are one of the gang. If you have fooled me also I shall say d—n. Oh d—n anyway."

Her indifference to the character of her surroundings, from the first, her frivolous talk, contradictory sentiments, frequent, causeless laughter, open pleasure at the trouble of others, glee at situations of obvious personal discomfort to herself, and general and utter lack of more than occasional seriousness at her situation, present and future, or actions in the past show most plainly a dominant tone of mental weakness such as is only to be found in the imbecile. This is well shown by extracts from her letters: "I've had a real good time in the sewing-room for the past two days. I never can say that I like to do a thing until I get some fun out of it, and I really had quite a lot of fun. I suppose it has been here [in me] ever since I have been here, but I haven't seen it. . . . Truly, I had a great, good time at the Barnstable jail after the first

ten days, even then I did not have a bad time." June 28, 1903, referring to an incident when on a visit to a friend: "It has left me rolling on the floor [with laughter]. I begin to feel like rolling on the floor now. I like to feel that way. I am having a big time, big" [in the sewing room]. March 8: "Don't ever ask me in your letters what I mean by what I write, I don't know myself—I'm talking through my hat. Nellie told me once that you said I made you dizzy when I got to talking and laughing. I laugh now, Mary. I nearly bust myself laughing this past week. I don't like the locality I live in either." July 8, 1903, after greatly disturbing the ward at night with a violent fit of screaming for no obvious cause: "I meditate and praise and pray all the time, and shall be ready at the end to take vows and become Mother Honora of the Seven Wounds." In one of her thoughtful moods she writes: "I do grieve to be in this state, I do, when I have thought-force enough to think it out. When I am discontented I ask myself what I want and I don't know. A change of any kind seems torture to me even to think of and why I want to live this way I don't know. . . . Never mind, Mary, the fact remains that I have had a bully time in life in spite of everything." "I never feel that I am having a real good time when I'm behaving." Oct. 4: "I am still furnishing material for the drama of the 'unpopular lady.' I do wish I could be have myself for it all tires me so now, but I shan't probably till my last breath."

By December, 1903, she had become generally antagonistic toward all about her, as well as highly suspicious and irritable. She wrote voluminous tirades against the hospital and its management, treatment of patients, etc., making wholesale and absurd accusations and denunciations, some of them of an entirely delusional nature. She writes her sister, for example: "Do you know, the supervisor put some poison in my tea. A patient saw her and told me and I didn't touch it. The lady heard the supervisor say she had fixed J. T. this time." Apropos of special diet offered her she writes: "No, I thank you, Dr. Brown, I will stick to bean soup and keep safe above ground and out of Dr. Miller's [the pathologist's] hands. Some steak strikes some people right. This steak is sure death." Again, in a

letter to her former counsel, she speaks of him as one of the "gang" who is managing her case, all the physicians and nurses of the hospital being included. She continued to write in this strain although told that such letters would no longer be forwarded. Dr. Brown also reports the following statement made to him by the patient: "I don't wish to associate with the low and vulgar people that are employed in the sewing room. They talked about me before the other patients in a low and vulgar manner." She then described a revolting scene, impossible on its face, as enacted by the two employees in charge, self-respecting, modest women, and gave a circumstantial account of talk and actions on their part of the vilest kind, in a manner highly suggestive of delusions, of persecution and hallucinations of hearing. At this time, also, she is reported to have grown very neglectful of her personal appearance, even having to be told to wash her face. She had become very abusive to the nurses, defying their authority and inciting patients to do the same, going so far as to shout to a melancholic whom the nurse was trying to feed, not to eat the food as it was poison. Her physical condition had fallen off greatly. She had lost fifty pounds in weight in a few months, in consequence of her refusal of food because of false belief in regard to it. Owing to her weak condition she was removed to the infirmary. There she became more disturbed, as well as destructive and dirty in habits, enraged and somewhat violent, threatening to kill her nurses, etc. By February, 1904, she was greatly emaciated, having lost over eighty pounds, or about half her normal weight, and was so weak that forced feeding with the tube was resorted to for several days, since which time she has eaten voluntarily, but just enough to avoid being fed again. The artificial feeding was employed only after persistent persuasion and every possible measure to induce her to eat had been tried, including special articles of diet from the superintendent's table. A thorough physical examination revealed no evidence of bodily disease.

On a recent visit, March 1904, she was found by the writer in good spirits, talking volubly and aimlessly at the nurses. She began at once on a tirade against the hospital, its officers and all its belongings. She insisted that everything was

"rotten," that the meat was "embalmed" beef, etc., etc. She persisted in these complaints after being told that we had just eaten the dinner provided for her, which we found nutritious and palatable. Everything was filthy, she said, even the brick walls which must be "saturated with the filth of years;" the water supply (which is taken from an artesian well) was "polluted with sewage;" the vegetables were "rank poison." She spoke rather anxiously about a general feeling of numbness, and asked what was the cause of it. She was entirely inaccessible to explanation, argument, or even positive proof as to the impossibility of her statements. Occasionally she would burst out unexpectedly with peculiar and piercing shrieks of laughter which would seem impossible to one in her weak condition.

Many of her indiscriminate and senseless charges seemed to be rather the expression of an insane malignity toward everyone than the outcome of genuine belief that they were true. But we were, at the same time, convinced beyond a doubt that she was also suffering from strong and genuine delusions of persecution by poisoning, because her belief in this regard so consistently influenced her conduct that her refusal of food had practically reduced her to a skeleton, and repeated forcible feedings had no effect in changing her convictions. Her persecutory ideas vary in strength from time to time, but the delusions of suspicion from which they spring remain unshaken. The following letters evidently coming from the heart, are characteristic of delusional insanity

MARCH 15, 1904.

Dear —: I am the victim of nerve paralysis, the result of food. I have to eat or I am fed with a tube with nerve-paralyzing food that I choose from the tray. Oh, I think that you and — were criminals to put me through this. It was an awful thing to do to any human being, and I have my opinion of everybody who takes a hand in it. I think it has been a most noble (?) piece of work. I think as the nerves of my body get more benumbed my brain becomes clearer to the outrageous course that has been taken with me. I suppose the next thing something will be given to put me out of the way altogether. That would be a mercy to this. J — T —."

"TAUNTON LUNATIC HOSPITAL,

DOCTOR STEDMAN: I wish to inform you that I am alive in spite of the deleterious food which has been served to me. Many efforts

have been made to poison me in this institution, of that I am very sure. I am thin and very hungry all the time. Every nerve is calling for food. Why can't I have help? I ate a pint of ice cream and four oranges Saturday and Sunday. That was all.

J— T—.

NORAH KELLY."

July 4, 1904.

It is worthy of note that, as would be expected in an insanity of the hereditary-degeneration group, the mental deterioration takes in this case the form of delusion rather than dementia.

In this after-history we find, brought into bold relief, the inherent, underlying defect of weak-mindedness which was noted, but only obscurely seen, earlier, for want of opportunity for proper observation, and also the outgrowth therefrom of pronounced intellectual change in the shape of positive delusions. These, together with the other and characteristic manifestations, afford the strongest confirmation of the patient's insanity, intellectual and moral.

The development of a delusional state in the course of moral insanity is, apparently, not uncommon, and affords another and strong argument for the contention that intellectual involvement in some form is an essential feature of the disease, or, in other words, that there is no such thing as a mental disorder affecting the moral sphere alone. Delusions are reported as occurring late in the disease, if at all, suggesting a secondary condition or stage. Comparatively few descriptions of moral insanity include this feature, perhaps because the few cases that reach the hospital for the insane either are not closely observed late in the disorder or, if followed up, are not recorded, and thus the picture of the entire disease-process as revealed in a certain proportion of cases is left unfinished. Another and, to our mind, weighty reason is that most of the morally insane are sent to prisons where they rarely come under the observation of alienists. When their insanity has fully and unmistakably developed they are perhaps transferred to institutions for the chronic or criminal insane, where they pass for cases of chronic delusional insanity or dementia. That this view is not overdrawn is plain, even from Lombroso's accounts of the history of a number of prisoners of this class with reference to their intelligence, in some of whom delusions

of suspicion and persecution are noted and in others a decided paranoiac tendency is evident. Schule⁷ says of them: "They may develop neuroses, somnambulism, periodical insanity, hypochondria." Dagonet⁸ even finds acute delirious mania and hallucinations in the course of the disease. Arnaud⁹ concludes a recent and instructive chapter on moral insanity with an account of a typical case with a late manifestation of "delusions of persecution more or less systematized and hypochondriacal ideas." In the opinion of the distinguished and practical psychiatrist, Hack Tuke,¹⁰ "there can be no doubt that in a number of cases of seeming moral insanity there develop in course of time definite delusions, especially of suspicion." According to Folsom,¹¹ "it is the rule that their doubts, imaginations and suspicions deepen into active insane delusions, their mental impairment advances to noticeable dementia, their moral deterioration goes on to such a degree of depravity that everybody wonders why they had not been seen to be insane long ago, and they are secluded in an asylum or elsewhere."

Further research in this direction can hardly fail to enlarge our knowledge of this intricate disorder and its affiliation with paranoia.

The striking parallelism between this and the once famous case of Christiana Edmunds, who was pronounced to be insane by Maudsley and several other distinguished alienists, is sufficient excuse for referring to it here. The extract is taken from an account of the case¹² quoted by Blandford and cited as typical of moral insanity:

"Christiana Edmunds is an example of a person *utterly devoid of moral sense or moral feeling* in matters relating to herself, though theoretically she doubtless knew that murder was a wrong thing. That she knew perfectly well what she was doing, in purchasing poison and disseminating it broadcast through the town by means of poisoned chocolate creams and that she *knew she was therein doing wrong* were equally beyond dispute. Her whole conduct before the crime, and her *perfectly rational conversation* in jail, clearly proved that she could have taught a schoolroom of children in the Ten Commandments, and explain to them clearly that it was a wicked

act to break any of them, and a most wicked act to break the Sixth Commandment. But no one could have talked with her in jail without being convinced that in her own case she had *no real feeling of the wicked nature of her acts*, and that she would have poisoned a whole city-full of people *without hesitation, compunction, or remorse*. Indeed, it may be doubted whether in her later experiments she was really so much influenced by the *inadequate motive*, which no doubt instigated them at the beginning, as by *a morbid pleasure in poisoning for its own sake*, and in the sensation which her secret crimes excited. The terrible story of *insanity in her family* furnished the real explanation of her state of mind; she had the heritage of the insane temperament."

Dr. Orange, the Superintendent of Broadmoor, under whose care Christiana Edmunds has been ever since her trial, says: "That she has been *regarded as of unsound mind by all the medical officers of the asylum* who have been here during the last five years. She is at present fairly tranquil, and her conduct is much better than formerly; but I do not regard her as being sane, or fit to be trusted to keep out of mischief. She formerly had *periods of depression alternating with periods of subacute mania*, but latterly her condition has been more equable."¹³

"The ability to discriminate between right and wrong as the sole test of responsibility fails in this case for the same conclusive reasons that have rendered it valueless in a great many others, and have caused it to be rejected by all alienists and most jurists of to-day. It takes no cognizance of the power of personal restraint and inhibition. An insane person, as all psychiatrists know, may know right from wrong in the abstract, may understand that a certain act is unlawful and wicked, but may be unable to control himself through weakened will power (the result of hereditary defect or disease), or when goaded to desperation by persistent delusions and hallucinations. "In fact, the cases of insane criminals in whom there is no knowledge of right and wrong, or who do not know the nature and quality of the acts they commit are very few indeed."—(McPherson.) It was one of the highest legal authorities of England, Lord Chief Justice Cockburn, who declared twenty years ago that the power of self-control when destroyed or suspended by disease was an essential element of responsibility.

"L'Homme Criminel." (Tr. from the Italian.) 1895. Vol. II, p. 8.

"Dict. Psychol. Med., p. 814.

⁴McPherson, *Mental Affections*, p. 301.

⁵Op. Cit., vol. ii, pp. 20-26.

⁶Geist. Krankheit. (1881.)

⁷La Folie Morale, 1878.

⁸Ballet: *Pathologie Mentale* (1903), p. 652.

⁹Dict. Psychol. Med., p. 814.

¹⁰*Mental Diseases*, Boston, 1886, p. 144.

¹¹Blandford: *Insanity and Its Treatment*. 3d ed., p. 228.

¹²The italics are ours. H. R. S.

HALLUCINATIONS.

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Since the time of Esquirol¹ illusions and hallucinations have been sharply distinguished. The former being "the false interpretation of external objects," the latter "subjective sensory images" conditioned centrally without the operation of an external stimulus. This distinction is so readily made by language that—given the definition of illusion, that of hallucination presents itself as a corollary and no one seems to have doubted that the difference so readily and accurately expressed corresponded to an actually existing state of things. Taking for granted the correctness of their definition psychologists and psychiatrists have vied with one another in their attempts to explain hallucinations. As a result we are overwhelmed with theories of all degrees of probability supported by arguments of more or less doubtful coherence and reinforced by classifications and finely drawn distinctions.

Let us turn to our authorities and find what they consider an hallucination to be. Griesinger² says: "By hallucinations we understand subjective sensorial images, which, however, are projected outwards, and thereby become, apparently, objects and realities. Tuke³ that they are "Sensations experienced, although no external objects act upon the periphery of the sensory nerves." Von Krafft-Ebing⁴ that "Hallucination is the result of an excitation of the central apparatus of a sensory nerve by an adequate ideational stimulus sufficient to give the force of a sense-impression to the answering excitation which is projected outwards?" Kellogg⁵ writes: "An hallucination is the void conscious revival of a sense-impression"

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sion without a physiological peripheral stimulus,"—and so on indefinitely.

The common feature of all these definitions is the essential part of Esquirol's distinction, viz: that the hallucination is centrally originated—that it is an idea or memory image, intensified and projected outward i. e., become a sensation. This theory is founded upon a complete misconception of the mental state in hallucination and of the nature of sensation. It is absolutely impossible for a centrally aroused idea to be mistaken for a sensation. The most characteristic feature of a sensory impression, in fact the very feature which stamps it as such, is the feeling of objectivity, of externality that goes with it and no centrally aroused idea can acquire in any way this feeling. In other words an idea of a sound cannot by any possible increase in intensity actually become a sound.

As Meynert⁶ well says: "The mnemonic image of the most terrible burn is not to be compared in intensity, as regards its effect on the skin, with the faintest touch of a feather. The mental picture of the sun's bright disc has less to do with an impression of light than the least conceivable fraction of the glow-worm's faint radiance. The ear-splitting roar of a cannon as a mere image in the memory has less power to affect the sense than the immeasurably minute sound of a hair falling upon water." And as Griesinger* acknowledges: "The patient really, and not merely thinks that he hears, sees, and smells."

To account for this feeling of externality and projection outward of the hallucination and also for certain cases where the sense organ itself appeared to be involved, an addition to the above described theory was evolved whereby it was assumed that the sensory channels become the seat of a centrifugal nerve current, originating in the higher ideational cortical centers and following thence to the sensorium, and from there on downward in many cases to the sense organ where the conditions present indicated a local disturbance therein.

It is a sufficient criticism of this theory of centrifugal conduction to say that it is founded upon a purely gratuitous assumption. No adequate proof has ever been offered that a

*Op. cit.

sensory nerve can conduct in other than a centripetal direction. Bert's classical experiment of grafting the end of a rat's tail into the middle of its back and then, when it had grown fast, cutting it off at the root and finding that it was still sensitive proves nothing. It is true that this might be explained on the assumption of a reverse current in the sensory nerve, but it could equally well be accounted for by the theory that the motor nerves had assumed sensory functions.*

In addition to these two theories, the "central" and the "centrifugal," we have to note that certain authors have endeavored to explain hallucinations by centripetally conducted nervous impulse. As Parish⁷ says, however, "Most of the writers who support this view seem more or less alive to its bearings on Esquirol's distinction between hallucination and illusion, but so bred into the bone is this time-honored distinction that they do not at first so much as attempt to discover whether there are really any hallucinations in Esquirol's sense at all. They simply take them as proved, and proceed to set up new categories. Schlager⁸, for instance, distinguishes not only between hallucinations and illusions, but creates another class, abnormal sensations, strictly so called, which he endeavors to explain, speaking of olfactory cases, through polypoid growths in the mucous membrane of the nose, through concussion of the brain, apoplectic attacks, etc., that is to say, through inadequate stimuli. Whilst he was able to observe numbers of these phenomena, he could not succeed in meeting with any genuine hallucinations at all. Lazarus considers that in hallucination the sensory nerves are stimulated throughout their course to the centre by internal processes, but he creates a new class, "visions," which he explains on the psychical theory.

It is plain from this hasty review of the various theories which have been advanced to account for hallucinations that

*These two explanations do not exhaust all the combinations which can be conceived of as being possible. During healing it is not probable that everywhere a sensory nerve united with another sensory nerve and a motor nerve with a motor nerve. Sensory and motor nerves may have united with one another, and again it is possible that some new nerve channels may have been formed. There is no evidence on these points.

every possible locale has been considered as the place of their origin. Both the "central" and the "centrifugal" theories we have found good cause for rejecting. It remains, however, for us to examine the "centripetal."

Aside from the theories of Schlager and Lazarus already mentioned, who merely avoid the main issue by creating new classifications, we have the more modern theories of Binet and of James. Binet, by a series of experiments with suggested hallucinations, concluded that in every case the hallucination was associated, built about as it were, some object of the environment—the so-called *point de repère*—and that this was essential to give the sense of objectivity to a suggestion. James on the other hand assumes the existence of a centripetal current, be it ever so weak, and his "bucket theory"¹¹ is an elaborate attempt to explain the cellular dynamics of hallucination. To quote his own words: "When the normal paths of association between a centre and other centres are thrown out of gear, any activity which may exist in the first centre tends to increase in intensity until finally the point may be reached at which the last inward resistance is overcome, and the full sensational process explodes." * * * "Whenever the normal forward irradiation of intra-cortical excitement through association-paths is checked, any accidental spontaneous activity, or any peripheral stimulation (however inadequate at other times) by which a brain-centre may be visited, sets up a process of full sensational intensity therein."

It will be seen from these statements of the theories of Binet and James that the former has devoted his energies to the environment, the latter to the cellular processes of the brain. No one thus far has seemed to consider the sense organ itself worthy of much attention. It is true that here and there an investigator has called attention to the condition of the sense organ in hallucinations, particularly Schlager before mentioned, and Hoppe.¹² There does not, however, seem to be any unanimity of opinion as to the origin of hallucinations among investigators, but on the other hand a generally prevailing tendency to accept Esquirol's distinction.

Within the past few years the knowledge of the several sense organs has been materially added to, especially the

knowledge of their various diseases and coincidently a greatly improved technique of their examination has been developed. The time, therefore, seems ripe for a systematic study of the end organs in hallucinated patients with a view of determining just what relation, if any, exists between their states and the condition of hallucination.

With this idea in view I began, sometime since, at the suggestion of Dr. Sidis, and with the assistance of Dr. Daly, a systematic examination, of all hallucinated cases as they came to my attention. Owing to circumstances over which I had no control my work had to be discontinued, but Dr. Sidis has recently published¹³ the results of his labors along the same lines, and I feel that the time is ripe for calling attention to what has been accomplished and illustrating the new theory which has been developed by a few of my cases, although I realize that they were not studied as carefully or as thoroughly as would have been desirable.

This theory of Sidis' may be called, as distinguished from the other theories of hallucination, the peripheral theory—a paradoxical expression from the standpoint of the definition of Esquirol. It is based upon the assumption that perceptions of any sort, whether of external objects or hallucinations must have a peripheral, a sensory origin to account for that feeling of externality, objectively that I have already called attention to.

A short inquiry into the nature of perception is, however, necessary to understand the method by which peripheral stimuli can produce hallucinations. I see an orange before me on the table. I see that it is round, at a certain distance from me and of a certain consistency, smoothness, size, and weight. The image cast upon the retina is simply that of a round, variously shaded patch of yellow; the perception of distance is due to the sensations derived from the ocular muscles in accommodation, convergence of the visual axes, etc., while the perceptions of roundness, smoothness, and weight are inferential from previous tactile and kinaesthetic sensations. These associated elements in the perceptions are, however, very different from ideas, or memory images. The element of weight for instance is quite distinct from either the

abstract idea of weight or the memory of the weight of previous oranges. The weight can apparently be actually seen, and thus forms an organic part of the percept orange.

In illustrating this point Sidis says: "In seeing a lump of ice we perceive its whiteness, its transparency, its hardness, its smoothness, etc. These elements seem to be given directly in sensory experience. They seem to be directly perceived and still are qualitatively different from the hardness, smoothness and coldness as given directly by the experience, when the hand gets hold of a smooth lump of ice. The sensory elements are determined and colored by the central visual sensory elements. The sensory elements of coldness, hardness, smoothness are of a visual character."

"It is usually claimed that such additional elements that are not given directly by the stimulated organ are elements representative in character, derived from the memory. This statement is not quite correct. In seeing the piece of ice the hardness, smoothness are not represented, they are *presented* to the eye; we really seem to see, to experience these sensations going to make up the percept ice. It is not true that on catching sight of a whitish, transparent, glittering lump we remember that it is also hard, smooth, and cold. The whole percept, with all its sensory elements, appears at once in the synthesis of the percept ice—we see, we perceive the hard, smooth, cold ice. The hardness simply remembered is altogether different from the hardness perceived in the seeing of the lump of ice."

What happens then in normal perception is that the sensorium is excited primarily by the particular form of sensory stimulus brought in by the acting sense organ and secondarily by the irradiation of this stimulus into adjacent sensory fields. The percept receives its specific sensory quality—visual, auditory—from the nature of the primary, focal sensory stimulus, and is made complete by the added secondary elements.

Now all that we have to conceive to explain the phenomena of false perception is the shunting of the main current of the sensory stimulus into the adjacent sensory fields, thereby arousing the secondary sensory elements to undue intensity,

so that they occupy the sensorium on an equal footing or perhaps to the exclusion of the primary elements.

The phenomena of secondary sensations, the so-called sound photisms, light phonisms, pain photisms, etc., have been known for a long time and are not particularly infrequent. Bleuler and Lehmann¹⁴ found them present in one form or another in seventy-six persons out of a total of five hundred and ninety-six, i. e., 12½ per cent. In most all of these cases, however, that have come to my attention, the primary and secondary perceptions are both present in consciousness, and the patient usually has not serious difficulty in distinguishing the false perception. Sidis has been the first to apply this theory of secondary sensations to the explanation of hallucinations, and the following cases will illustrate how the phenomena as ordinarily experienced can graduate into a true hallucination:

Case I.* Mrs. J., aet., 25 years, in good general health, complains of naso-pharyngeal catarrh and tickling in throat causing cough. She has deflected septum and enlarged lingual tonsils. Operation upon these and subsequent application of ordinary styptics¹ have been accompanied by the odor of almonds located on the side of the nose.

Case II.* Mrs. B. aet., 28 years, complains of having a bad odor in her breath which seems most acute to her in her nose. Her friends tell her that they can not detect any unpleasant odor. She seeks special medical advice because she appreciates this odor and suspects friends of being too courteous to tell her of it. She is in good general health with slight hacking cough and tendency to clear throat.

Examination shows the nose to be in normal condition throughout, the nasal vaults are unusually accessible, thus leaving no doubt as to their healthy condition. Pharynx and larynx also normal.

The nostrils were alternately plugged, the lips closed and air from each nostril and the mouth tested separately. Not the slightest odor could be detected though she appreciated it herself as being very disagreeable. Two small lingual tonsils were more closely examined and upon the posterior side of

*Cases I. and II. communicated by Dr. R. R. Daly.

each a minute morsel of food was found. This was removed, but on examination was found to have absolutely no odor. It had not undergone sufficient change to disguise its character—it was bread. Shortly after its removal the bad odor grew less. Both tonsils were at once removed and the patient sent home. At the end of two days all odor had disappeared. At the end of four days there was still no odor, but it was induced by touching the neighborhood of the tonsils by a small pledget of cotton carrying a weak solution of citric acid. At another time it was induced by a very weak faradic current. The odor had not reappeared at the end of six weeks except by stimulating the taste goblets, and the patient was entirely relieved of the hacking cough.

This latter case was truly hallucinated by a secondary sensation, although she was not insane. It can be readily seen, however, how such a phenomenon occurring in a predisposed individual or in one already over the border line might soon form the focus of well-marked persecutory delusions.

Case III. D. C. A young woman admitted to the hospital with an acute psychosis of the confusional type with dream-like hallucinations, both visual and auditory. She saw all sorts of visual images, processions of soldiers and the like, and also heard voices. After recovery said that the figures she saw were in motion and the principal direction of their motion was downward so that she had to strain to keep them up in the visual field; also saw patches of light which moved by preference to the right.

Examination shows vision 20-20 for both eyes with slight astigmatism and slight photophobia with somewhat abnormally red retinal reflex. Septum slightly deflected to left into middle meatus. Right middle turbinated is bullous and impinging on septum. There is a sub-acute catarrhal nasopharyngitis probably following diphtheria, which she has had three times. Ears show slight retraction of drum membrane with slightly shortened cone of light in each side.

Stimulation of the retina by having patient look at light of an Argand burner, produced sound as of ringing bells, which lasted forty-two seconds after the light was turned off and eyes shut. In trying this experiment again the sound de-

veloped in twenty-seven seconds after the stimulus was applied, and had ceased in twenty-two seconds after it was withdrawn.

In this case the motion of the visions would indicate that they were due to *muscae volitantes*. Particularly is this indicated by the straining effect required to keep the images within the visual field. There is present, however, a well-marked catarrhal condition of the pharynx with abnormalities of the septum and right middle turbinated which have resulted in a moderate grade of middle ear disease. There are also present on experimentation elementary light phonisms.

The sensory falsifications probably took their origin in the extremely sensitive eye from the misinterpretation of floating bodies in the vitreous. The patient seeing these bodies against the light walls and ceiling of the room as she lay upon her back. The constant stimulation of these sensitive eyes brought about the light phonisms which were interpreted as voices, the auditory apparatus being in an especially susceptible state, due to the summation of stimuli from the abnormal end organs.

The following case I was able to experiment with somewhat during the time she was hallucinated. It shows some points of great interest:

Case IV. G. E. M., female, married, passed menopause. Diagnosis, paranoia. Her mental alienation is stated as having originated about one year ago, when she lost her older daughter to which she was deeply attached. At this time she became much depressed and suffered from considerable gastric disturbance, so that it was some weeks before she rallied and was able to take much food. Her mental trouble all along has been much aggravated by her husband, who, although he provides liberally for his family, causes her much concern by indulging to excess in alcohol periodically.

At present she claims to be able to see visions of the spirit world. She is continually surrounded by spirits and can always see them and believes firmly in their reality. The origin of these hallucinations, she explains, was from her intense desire to see again her dead daughter, of whom she has no picture. Since she first saw a vision of her daughter, how-

ever, many other spirits have appeared to her, in fact she says that she has had visions from time to time ever since she was a child. She has lately suffered much from some of the spirits who she thinks are evil in nature. They keep her awake nights and bother her with pains in different parts of the body, etc. She has never been able to communicate with these spirits, but of late has occasionally heard them speak a few words, and these words are usually heard in the right ear.

An examination disclosed that her vision was apparently quite good for one of her age. She was asked to fix her attention on the spirits about her and describe how they looked. She did so and it was noticed that she closed her eyes. In reply to a question she said that she usually saw the spirits better with closed eyes. An examination of the hearing disclosed that with the right ear she could only discover the ticking of a watch when the watch almost touched the ear. With the left ear she could hear the watch tick about 37.5 cm. distant.

The aurist, who examined her ears some time ago, told me that she had some catarrh of the middle ear, but beyond this there was some "nerve trouble."

An examination of the eyes was made by my advice. Atropine was put in them for the purpose of making this examination. Her attending physician then, at my request, observed the effect upon her visual hallucinations. He tells me to-day that so far as he could observe no effect was produced, that the hallucinations were as clear as ever. This certainly strongly negatives Binet's *point de repère* theory.

My experiments in this case consisted in the main of stimulating the auditory nerve in various ways—by talking, reading, singing, and the use of the tuning forks. When the experiments were commenced the spirits *were seen very indistinctly*, only the general outline was visible and not the faces; after the experiments had been continued a short time the *spirits' faces could be seen* and wore an expression of interest, and after a still further interval, during which I continued to apply auditory stimuli, the patient said that the *spirits were more numerous* than at first, and they *came nearer to her*.

It was found also that relaxation of the accommodation would cause spirits to appear in the visual field.

In this case there is direct evidence of the effect on hallucinations in one sensory field of stimulation of the sense organ belonging to another sensory field. It is also noteworthy that the visual hallucinations could be brought about by relaxing the accommodation and that the auditory hallucinations—voices—were usually heard in the right ear—the one more seriously affected.

But the occurrence of secondary sensations, such as described in the foregoing cases, are perhaps not the usual ways in which we see hallucinations manifest themselves. In the cases cited thus far there have been evidences tending to show that the sensory current arising in the periphery was shunted, to a greater or less extent, into another sensory field, as in Cases I and II, taste olfactisms; in Case III, light phonisms; and in Case IV, sound photisms. It is more usual to find, however, that the secondary sensations that go to form the hallucinations arise in the same sensory field as that in which the hallucination is perceived, and its origin is then found to be dependent upon stimulation of the corresponding sense organ. Thus the humming, buzzing, singing subjective sounds of otitis media, give rise to the hallucination of voices or floating bodies in the vitreous are seen as faces and the false perceptions—rather illusions than hallucinations in the sense of Esquirol—are said to be of entotic or entoptic origin, as in the following cases:

Case V. D. F., female, age 43, diagnosis, paranoia. Came to hospital with history of persecutory delusions and auditory hallucinations, and is said to have threatened suicide. The principal delusion she had on admission, and the one that has persisted ever since is that there were "talking machines" in her head, and she was continually annoyed by them. She says she frequently hears voices talking to her and can understand what they say. She has heard these voices for a long time but of late never hears them unless she lies down, although she says that before coming to the hospital she used to hear them while up and about and engaged in her ordinary household duties.

Patient thoroughly believes in the reality of these voices. She also has vague persecutory delusions connected with what she sees. She will cover up her head when lying in bed to shut out the sight of those who walk by her room door. Every motion such persons make, as, for instance, scratching the head, putting the finger to the mouth, etc., is interpreted as having some reference to herself. The exact significance of the signs, however, she does not know. She says, further, that she does not enjoy entertainments because every one there knows what comes into her mind. People know her thoughts as soon as she thinks them. The machine that used to be put on her head read her thoughts. She used to stuff a handkerchief into her mouth to prevent herself from talking so others could not know her thoughts. She says she must have said things for she often felt her lips move but tried to prevent them when moving, as above, but could not. When her lips moved she talked. She does not intend to talk, but the first thing she knows her lips move and every one acts as if she had said something that was not right.

As patient stated, she heard voices usually only when lying down; she was requested to lie down, first on one side and then on the other, and it was discovered that the voices were only heard in the under ear; the ear which was closely applied to the pillow. In this position she heard a man and woman crying—they sounded like her brother and sister. She also heard the sentences, "Nobody to blame but yourself," repeated by a woman's voice; and "Johnny is here."

She heard both the crying and the words at different times in each ear. While she was hearing the sentence, "Johnny is here," being repeated, she was asked to press the tragus of the ear in which she heard the voice well down upon the entrance to the auditory canal and observe the result. The voice was just as distant as before but appeared to be somewhat differently located.

From time to time this patient has complained that something was placed in her food. In answer to inquiries concerning this point she stated that she was led to the belief because after partaking of a meal her mouth was dry and smarted and tasted bitter. She did not have this bitter taste

while eating, only afterwards. Examination showed her ability to distinguish ordinary tastes (sweet, sour, bitter and salt). Her tongue, however, was coated and her lips dry, and while being examined she stated that she had that same smarting feeling in her mouth which she described as having led her to the belief that something was in her food, although it was fully three hours after her last meal. She had no idea that she had been poisoned but thought that medicine had been given her in her food.

Naso-pharyngeal and aural examination gave the following results:

Nose: Perforation of septum 1 cm. in diameter through the cartilaginous portion.

Naso-pharynx: Chronic inflammation of mucosa of the vault and posterior wall with hypertrophy about both eustachian tubes.

Ear: Complains of ringing in the ears but not as much as formerly. Has vertigo, which comes on suddenly. She describes this by saying she feels as "if the side of the house was coming toward me and I have to lie down," and feels as "if drunk and I must steady myself." There is no history of pain or injury or sign of abscess or discharge.

Inspection of the external ear shows retraction of both membrana tympani. The right cone of light is shortened by one-half, the left by two-thirds. On the left side the membrane is attached to the promontory of the malleus.

On both sides Shrapnell's membrane is thickened and opaque. Weber's test gave better hearing in left ear. The Schwabach test gave the following results:

LEFT EAR.			RIGHT EAR.		
C ^a —Air conduction.....	27	sec.	C ^a —Air conduction.....	16	sec.
"—Bone "	8	"	"—Bone "	9	"
C ^a —Air "	37	"	C ^a —Air "	40	"
"—Bone "	22	"	"—Bone "	21	"
C ^a —Air "	13	"	C ^a —Air "	22	"
"—Bone "	8	"	"—Bone "	8	"

The results of this examination given above, confirm the diagnosis of internal trouble together with chronic otitis media. The condition of the naso-pharynx being contributory to the trouble with the ear.

The presence of middle ear trouble is made conclusive by the appearance of the tympanum previously described, this condition either in part depending upon or at least being aggravated by the hypertrophic condition of the mucosa about the pharyngeal terminations of the eustachian tubes interfering with the ventilation of the middle ear. Weber's test indicates merely that the two ears are not alike. Schwabach's test on the other hand indicates a trouble deeper seated than the middle ear, namely, a disorder of the auditory nerve itself. This is shown by the marked reduction in the length of time the different tuning forks are heard and also in the reduced ratio of bone to air conduction, especially for the upper and lower limits.

The vertigo from which this patient suffers can safely be put down as due to internal ear disease. While it is true that vertigo does occur with otitis media it is here rather an episodic phenomenon than a constant feature. Tinnitus, when persistent and of long duration, may also safely be considered as evidence of internal ear disease. Even when associated with otitis media it is probable that it indicates functional disturbance of the labyrinth.

We have discovered then, by our examination of the case, unequivocal signs of a chronic disease of the middle and of the internal ear. A disease which must of necessity maintain the end organ of hearing—the terminal filaments of the auditory nerve—in a constant state of irritation which irritation we have every reason to believe manifests itself more or less continuously by tinnitus aurum. It is significant, however, that this patient does not complain of a ringing, buzzing, humming or roaring sound in her head, but she does complain of the “talking machines” and of hearing people crying, and of the human voices that constantly address her. If this patient is misinterpreting the ordinary sounds of a tinnitus aurum and attributing to them the qualities of the human voice then we should expect to find that anything which tended to produce or aggravate the tinnitus would produce the characteristic auditory false perceptions. This we find to be the case. When the patient is asked to lie down and closely apply one ear to the pillow—a position calculated to produce

tinnitus if not already present or to aggravate it if pre-existent—she immediately complains of hearing a man and woman crying and also the sentences “nobody to blame but yourself,” repeated by a woman’s voice, and “Johnny is here.” These sounds and sentences are only heard by the ear applied to the pillow, whichever one that may be.

In this connection the patient’s own testimony on the subject of subjective noises is interesting. She says she used to have a great deal of singing in her ears, but that she has not nearly so much now. She used to think that the spirits produced this ringing. At present the most common subjective sound aside from actual voices, is a humming. This humming, however, she attributes to human agency. The tendency to delusional explication and misinterpretation of subjective sounds is here clearly brought out.

We have proved in this case, beyond a reasonable doubt, that the origin of this patient’s auditory hallucinations is in the end organ of hearing. That the condition of irritation to which the terminal filaments of the auditory nerve has been subjected has been sufficient to produce subjective sensations of the specific character for which that nerve is specially constructed and that these sensations, arising in this manner have been falsely perceived by the patient.

A similar condition exists in the next case:

Case VI. M. D., female, married, aet. Diagnosis, paranoia. She is kept awake nights by her enemies. They followed her from S— here and live on G— avenue, city of B—. Their object is to do her all the injury they can, and they constantly bother her by “yawling and bawling” through the floors and the walls. These enemies are friends of a woman who interfered between her and her husband. These voices are heard both day and night, but mostly during the day. She distinguishes the voices of men, women, boys and girls, heard as if coming through the walls or floor. She says she can hear these voices echo way down in her stomach. When the voices annoy her very much she puts her fingers in her ears or presses on the tragus. At night she often stops up her ears by lying on one and putting a finger in the other. Often notices that when she does this she still hears the voices and

so she assumes that they must be talking louder. At times the voices are indistinct, at other times she can undersand what they say. It is usually vile, nasty language which she does not like to repeat. When she hears this and then stops up her ears she has noticed that the words became more jumbled so that she could not distinguish what was said. Thinks that the voices must speak through tubes, inasmuch as she can hear them through the walls and from one end of the ward to the other.

Naso-pharyngeal and aural examination gave the following results:

Patient thinks her hearing has failed for the past two years. Says the right ear seems as if filling up. She attributes this to the pressure on the ear used to keep out the sound of the voices. Complains of occasional attacks of vertigo. It is objective in character and usually occurs when stooping and getting up quickly, or in going up and down stairs. Has also had several attacks of vertigo occurring in the morning. When this occurred she kept her bed until it had disappeared before rising. She describes this by saying that she has "a feeling as if I should fall if I were standing." She has ringing in the ears for three or four days when she has a cold in her head. On examination she denied having any entotic sounds, but after repeated listening intently she confessed to hearing a slight ringing sound in the right ear.

Naso-pharynx: There is chronic congestion and hypertrophy of the naso-pharyngeal mucosa, especially about the openings of the Eustachian tubes. Politzerization is accomplished with difficulty. Both inferior turbinated bones are hypertrophied.

Ear: Left drum membrane cloudy and slightly retracted. Right drum membrane normal.

Schwabach's test gives the following:

LEFT EAR.			RIGHT EAR.		
C ^a —Air conduction.....	17	sec.	C ^a —Air conduction.....	20	sec.
"—Bone "	10	"	"—Bone "	13	"
C ^b —Air "	55	"	C ^b —Air "	47	"
"—Bone "	25	"	"—Bone "	15	"
C ^c —Air "	30	"	C ^c —Air "	30	"
"—Bone "	10	"	"—Bone "	8	"

This table shows diminished bone conduction especially on the right side, and taken in connection with the other symptoms in the case indicates beginning degeneration of the filaments of the auditory nerve in the internal ear.

During examination I had her hold her hands over her ears, and each time she heard voices. These voices each time were heard as if coming from her right, although she said she heard them in both ears. It is significant in this connection that she usually lies on her right side at night and that at this time the voices seem as if they came from behind.

Both of these cases show quite clearly that the *origin* of the false perception was due to a pathological process in the end organ. This much is necessary to stamp the experiences with the feeling of objectivity—of having arisen in the environment. The specific elaboration of this sensory material into perceptions of voices is what is attributable to the central nervous organs.

A wave of consciousness is composed of many elements, presentative and representative, and the sensory elements are both primary and secondary. Normally the focal point, or point of clearest perception, is occupied by the primary, not the secondary sensory elements. Thus in looking at a painting of a beautiful landscape it is the visual perception of the blue sky, the winding river, the green grass that are focal and not the rippling of the river over pebbles, or the lowing of the cattle pictured in the foreground. These elements in the perception, the secondary sensory elements, are marginal, they do not reach the intensity of the others unless the attention be directly centered upon them to the exclusion of the primary elements.

Just the opposite state of affairs exists in our patients. Neither patient complains of tinnitus, but experiments clearly demonstrate that they both have it, and also that conditions which influence the tinnitus, also influence the hallucinations. Normally the primary sensory elements, the tinnitus in these two cases would occupy the focal point of the wave of consciousness, but here we see that they have sunk to a position of marginal value and the secondary elements have risen in their place so that an actual effort of attention is re-

quired to appreciate the tinnitus at all. In these cases the secondary elements have arisen in the same sensory field as the primary, while in other cases the primary and secondary elements may arise in different sensory fields as i. e. in Case IV the primary elements are auditory, the secondary, visual.

A similar condition of affairs is shown in the gustatory field in Case V. The false gustatory perception leading to the belief that the medicine was placed in her food, being quite clearly due to the condition of the mouth and tongue.

The next case presents false perceptions in both gustatory and olfactory sensory fields.

Case VII. Claims that she smells and tastes blood of people who are killed here. Blood is smelled when the cooking is going on in the kitchen and the odors from there permeate the ward. The blood is tasted at meal time when stews or sausages are being served. Not a case of hallucination.

Throat, nose, tongue, etc., shows no abnormal conditions present.

This case is particularly interesting because it is not a case of hallucinations at all in the sense of Esquirol but rather, and quite typically, a case of illusions, and yet we see here precisely the same mental process as in one other case, and after all why should we not? It cannot be a matter of vital importance from just what source the sensory stimulus takes its origin, whether from the patient's surroundings or from his end organs, both origins are from a psychological standpoint equally environmental.

The next case illustrates hallucinations of entoptic origin, due to floating bodies in the vitreous, and shown by experiment to be produced also by negative after images.

Case VIII. M. J. C., female, second attack. Diagnosis, melancholia.

Has the delusion that she is supernatural. That her body is filled with electricity, that she is a supernatural spirit of evil. That she is lost for the hereafter and her children would some day awake to the knowledge that they were just like her.

Sees visions. Often sees faces against the wall and they are then bright. Looked at sun the other day and they were

then all dark. Can sit and look out of windows and in a short time can see faces, sometimes eyes, sometimes a chain of faces, or only at times a lot of black dots. Says she thinks that these visions are impressions she has received at some time and are now projected out. Thinks they could be photographed and magnified.

Looking out of window at faces; they look about the same with each eye separately, but plainer with both eyes.

The visions are often described as chains and move quite rapidly at times. The further away they are the larger they are.

I sketched as near as possible the appearance of floating bodies in the vitreous and showed it to her; she said that what she saw had a similar appearance.

She was asked to look out of the window until she saw the faces. She did so. Faces were in motion. When she looked up or down or to the right or left she saw the same faces. They changed their position with the movements of her head.

The next case illustrates well the intimate relations existing between the sensory stimulus and the false perception on the other hand and the mental state and thoughts of the patient on the other.

Case IX. C. W. W., female. Voices different, but all are of Christ. He, however, uses different voices. Voices are internal. Patient used to think she spoke them herself because it seemed as if her lips moved. She was told to close her lips tightly and she heard the sounds just the same. She was also told that the left side is the region of the heart, and she has a trembling there when she hears the voice (which she does constantly). Voice sounds as if it came from that direction. The reason she never noted them before was that true facts were not revealed to her until December 20, 1899, when she was sick abed and had numerous communications from Christ and saw vision of husband's head and Christ's hands which were clasped. He said husband's soul was saved. Saw sleeve of Christ's garment and cuff on husband's wrist, also noted quality of goods of sleeve corresponding to what he was laid out in. Has seen same vision since.

Always sees vision at night in bed with eyes closed. Usually seen before going asleep but often after awakening during night, but always with eyes closed.

Visions of persons and things in motion, when eyes are closed (only) and usually in the dark—illumination good. Also hears voices, laughter, etc., often in connection with visions. Visions are invariably associated with auditory hallucinations, if not at their inception, then shortly after. Left ear marked retraction drum membrane—short process malleus and cone of light shortened one-half. Schrapnell's membrane hyperemic and thickened.

Right ear: Retraction of drum membrane, but not so much as left ear. No hyperaemia of Schrapnell's membrane.

Nose: Negative.

Throat: Chronic naso-pharyngitis and thickening of mucosa about both tubes.

Weber heard better left side (C.)

Watch tick: L. 54 in. R. 48 in. Voice said answered just right after completion of above experiments.

Schwabach:

LEFT EAR.			RIGHT EAR.		
C ^a —Air conduction.....	20	sec.	C ^a —Air conduction.....	22	sec.
"—Bone "	10	"	"—Bone "	10	"
C ^s —Air "	60	"	C ^s —Air "	45	"
"—Bone "	31	"	"—Bone "	29	"
C ^o —Air "	37	"	C ^o —Air "	28	"
"—Bone "	24	"	"—Bone "	11	"

Said that heard voices while tuning fork was being used in these tests.

Cotton in left auditory meatus, hand held over right, says hears voices tell her she better go see sister-in-law.

Sister-in-law was waiting in reception room for her.

Voice said to tell me that voices did not come from head when C^o was held to left and Sⁱ to right ear. Experiment repeated, voice said, "take your father's advice and do the best you can and you will come out all right."

Experiment repeated, no voice.

Experiment repeated, no voice.

Experiment C^s to left and C^s to right ear, voice said "Go

right on C— W— and answer Dr. White's questions and he will aid you.

Experiment repeated, voice said: "I will help you to answer the questions readily to Dr. White without the tuning forks; they have nothing to do with this case."

Experiment repeated. "He said not a word more as long as uses those, for they are of no avail."

Experiment repeated, voice said: "Ha! Ha! isn't it comical. Dr. White using those." Patient laughed.

Experiment repeated, heard word "nothing" repeated regularly at regular intervals.

I tried this experiment on myself and the nurse and found that I had unintentionally been moving the forks, for with my greatest efforts to hold them still the sounds nevertheless came in beats to the nurse's ear.

Experiment. Same forks to same ears, but C^s was regularly retracted. Patient said heard word "nothing" continuously and regularly repeated, and when asked to repeat it herself reproduced the same time intervals I had made with the forks.

LEFT EAR.				RIGHT EAR.			
C ^s —Air	conduction.....	70	sec.	C ^s —Air	conduction.....	74	sec.
"—Bone	"	.....29	"	"—Bone	"	.....35	"
C ^s —Air	"	.....34	"	C ^s —Air	"	.....19	"
"—Bone	"	.....8	"	"—Bone	"	.....10	"

During all experiments heard word "listen" repeated. It is noticeable that the tone of the forks resolves itself in about the same intervals as the word listen repeated.

That the central disturbance is a necessary factor in the peculiar interpretation of the sensory stimulus is shown in the next case.

Case X. M. M. Diagnosis, acute alcoholic insanity.

Right Ear: Drum membrane slightly opaque.

Left Ear: Same, even less.

Nose: Both middle turbinated bones touch the septum.

Throat: Normal.

Weber heard longer in left ear.

Schwabach:

LEFT EAR.			RIGHT EAR.		
C ⁴ —Air conduction.....	23	sec.	C ⁴ —Air conduction.....	14	sec.
"—Bone "	.....15	"	"—Bone "	.....14	"
C ² —Air "	.....44	"	C ² —Air "	.....38	"
"—Bone "	.....16	"	"—Bone "	.....19	"
C ³ —Air "	.....27	"	C ³ —Air "	.....24	"
"—Bone "	.....14	"	"—Bone "	.....13	"

Schwabach shows with C⁴ that air conduction is diminished indicating otitis media; while C² shows general diminution of perceptivity. The nares and pharynx being so clear the hearing is not so good as it should be at her age.

When this patient was admitted she was suffering from auditory hallucinations and persecutory delusions. These soon cleared up when the above examination was made. The conditions found were similar to those found in other hallucinated cases. Quinine was given in sufficient doses to produce marked cinchonism with tinnitus, but there was no tendency to hallucination. The sounds were appreciated at their true value. The central receiving apparatus had returned to a normal state.

The ten cases cited lead naturally to four conclusions:

First. Hallucinations are false perceptions. To have a false perception there must be something to perceive and that something is in the environment and can only enter as a factor into the mental life through the intermediation of sensations. Ideas can not be perceived. *—"Were that the case the course of internal and external worlds would have become confused and confounded, man would have become the dupe of his own ideas, the world a gigantic madhouse." * * * *

Second. Hallucinations are secondary sensations either arising in the same sensory field, in which case they might be described as illusions in the sense of Esquirol, or arising in other sensory fields in which case their secondary character is quite clear.

Third. The mental state in illusions and hallucinations is identical.

Fourth. Given the sensory elements the falseness in their perception is due to central derangement.

*Sids. Loc. cit.

The several theories of hallucination which have from time to time been exploited, particularly those that attribute their origin solely to centric disturbance with reverse currents in the sensory nerves, go a long way around and take great pains to find an explanation which in reality exists close at hand. Tichener¹⁵ estimates that there are more than 44,435 elementary sensations or sensation qualities appreciable by the various sense organs and says "Each one of these forty thousand qualities is a *conscious element*, distinct from all the rest, and altogether simple and unanalyzable. Each one may be blended or connected with others in various ways to form *perceptions* and *ideas*, A large part of psychology is taken up with the determination of the laws and conditions which govern the formation of these sensation complexes." Surely with this wealth of material, this abundance of the very elements that go to make up perceptions it seems hardly necessary to strain a point to look elsewhere for additional material.

True it often happens that the sensory elements of perception in whole or part have but a marginal or subconscious value. But because they may have been displaced from the focus of clear perception, relatively or absolutely, because perhaps they cannot be replaced except by a special effort or perhaps not at all they are none the less real. Many sensations are normally not appreciated at all either because of their weakness or because of the preponderance of some other sensations. In fact this is an absolute necessary condition for mental concentration. If it were otherwise and all sensory impulses were appreciated at their full value coherent thought would become impossible. The odor of the flowers on my study table is no longer appreciated when I become absorbed in a book, and yet it is quite conceivable that it may enter as a factor into the formation of my mental state at that time.

Thus it is that sensations that under ordinary circumstances would hardly, if at all, rise above the threshold of consciousness for some reason or other acquire an unusual value, and being thus out of harmony with the actualities they represent, a false perception is the result. This is especially well shown in the phenomena of dream consciousness. Here all

manner of sensory impressions which would find no place in waking consciousness find a fictitious value, not because of their increased intensity but because the ordinary sensations that occupy the waking consciousness are in abeyance. ¹⁶"Thus Weygandt dreamt on one occasion that he was looking at 'living pictures' under magnesium light, and found on awaking that the sun had just burst from behind the clouds; while Hammond mentions a gentleman who dreamed of being in heaven and was dazzled by its brilliancy, finding, when he awoke, that the smouldering fire had kindled into a bright flame, the light from which fell on his face." This explanation is particularly applicable to the organic sensations, the coenesthesia which acquire an added vividness in dream-consciousness because of the shutting off of the ordinary avenues of sensation. We all know, too, how easy it is to appreciate sensations from any part of the body when our attention is fixed on that part to the exclusion of all else. Many of the cases with delusions that animals are in the abdomen, the bowels are stopped up, the brains have been removed, can be explained in this way, especially those cases that show a connection between some pathological process as endometritis, chronic gastric catarrh and the like, of which there are so many.

It is necessary, however, in order that the particular sensory stimulus receive the specific interpretation that stamps it as an hallucination that there be a certain state of "preparedness" on the part of the mind. The mind of the patient with tinnitus aurum who hears a voice, is especially attuned to respond in that particular way. To the untrained ear the sounds that emanate from a full orchestra constitute one immense, unanalyzable volume, but the musician can instantly differentiate the high, strident notes of the oboe, the sigh and wail of the cello, the deep sonorousness of the double bass, and the blare of the horns, and as the music proceeds the slow solemnity of an adagio being replaced by the vivaciousness of an allegretto the composer fairly speaks forth his thoughts, his feelings, his very soul to the listener. It is the old experience over again of finding what is sought. The student looking into the microscope for the first time invariably sees

what the master tells him is there. What wonder then that the paranoic, harassed by all manner of suspicions, trusting no one, feeling that all are leagued together to accomplish his ruin, suffering from almost continuous entotic sounds should sooner or later begin to single out from this constant jumble of buzzing, humming, and ringing the voices of his enemies?

Many more cases might be cited by way of illustration of the various points brought out in this paper which I am afraid is already unduly long. I wish only to add that I have never yet failed to find a peripheral pathological process in all hallucinated cases I have examined which could explain directly or indirectly the hallucinatory phenomena. It is, of course, not necessary that a peripheral process be pathological in order to account for a hallucination as witness the dream hallucination and the hypnotic hallucination, but it is hardly conceivable that the auditory hallucinations of a paranoic which are practically constantly present unless the patients' attention be distracted could be produced by other than a constant irritant, which, of course, would necessarily be pathological in origin.

The necessity of a most careful and painstaking examination of all hallucinated cases is apparent, especially when we remember the multitudinous possibilities of arousing secondary sensations in other sensory fields. Not only sound photisms, light phonisms and similar combinations in the regions of the special senses are known, but the much more obscure region of the coenesthesia is sometimes involved and Gruber,¹⁷ has described colored temperature, colored movement, colored resistance, movement hearing, temperature hearing, resistance hearing and many other combinations equally complicated. With all these possibilities in mind I would be loath indeed to accept other than a peripheral explanation of any hallucinated case.

¹⁷Esquirol, "Sur les Illusions, des sens chez les aliénés," Arch. gen., 1832.

¹⁸W. Griesinger, "Mental Pathology and Therapeutics" (Trans.), New York, 1882.

¹⁹D. Hack Tuke, "A Dictionary of Psychological Medicine" (1892).

²⁰Von Krafft-Ebing, "Die Sinnesdelirien" (Erlangen, 1864). Also "Lehrbuch der Psychiatrie."

⁷T. H. Kellogg, "A Text Book of Mental Diseases" (N. Y., 1897).

⁸Th. Meynert, "Ueber die Gefühle" in the Sammlung von populärwissenschaftlichen-Vorträgen über den Bau und die Leistung des Gehirns.

⁹Edmund Parish, "Hallucinations and Illusions," N. Y., 1897.

¹⁰L. Schlager, "Ueber Illusions in Bereich des Geruchssinnes, etc," Wiener Zeitschr. N. F. I., 19, 20 (1858).

¹¹Lazarus, "Zur Lehre von den Sinnestäuschungen" (1867).

¹²Binet, "L'Hallucination" (Revue Philosophique, April, May, 1894); Binet and Féré, "Animal Magnetism"; Eng. Trans., Internat. Sci. Series, N. Y., 1898.

¹³William James, "The Principles of Psychology," 1890.

¹⁴J. Hoppe, "Der entoptische Inhalt des Auges und das entoptische Sehen," etc., Allg. Zeitschr. f. Psych. (1887); Erklärung der Sinnestäuschungen, etc. (4th Edit., 1888).

¹⁵"An Inquiry into the Nature of Hallucinations." Boris Sidis. Psych. Review, Jan. and Mch., 1904.

¹⁶Cited by Hyslop in "Mental Physiology," Phila., 1895.

¹⁷"An outline of Psychology." E. B. Titchener. N. Y. 1899.

¹⁸"Sleep: Its Physiology, Pathology, Hygiene, and Psychology." By Marie de Manacéine. Contemporary Sc. Series. N. Y. 1899.

¹⁹"L'audition colorée et les phénomènes similaires." International Congress of Experimental Psychology. London, 1892. Cited by Hyslop, *op. cit.*

A CASE OF SLEEP-TALKING.

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A young physician, enjoying excellent opportunities, wrote much and with a good degree of acceptance. An English reviewer, however, said "the doctor is writing too soon, for he is not yet out of the observing stage." Apparently many of our writers are not out of the "observing stage," or medical literature would not be packed with individual theories and conclusions that crumble under scientific tests. And yet the work of careful observers and faithful recorders is of the greatest value, for occasionally a genius passes by, gathers up a vast number of observations, sifts, weighs and classifies them, and adduces conclusions that science can safely accept and file away.

In the light of this our limitation, your attention is called to an observation, nude, undraped by any theory as to nature or cause. Some of the manifestations observed are of little scientific value, and are presented only to more fully illustrate the case; a few are, perhaps, of the nature of mere coincidences; while others represent conditions and facts, and, like similar ones recorded by other observers, may be worthy of the attention of the scientist. D., when placed in the care of the writer, who had long been a friend of the father, was thirty-two years of age, a farmer, and a benedict of two years. He was the eighth of a family of ten children, all of whom reached man's estate. His parents lived seventy-six years, although the mother was thought to be in a decline at the time of her marriage. The children were large but not robust, and three manifested phthisical tendencies. D. was of large size yet not vigorous, and he recovered slowly from injuries

that are comparatively trivial to persons in general. He was of kind disposition, social, youthful in feeling and conduct for one of his years, yet impulsive, inclined to be headstrong, and was less easily guided than the other children; was one of those who think a desired end cannot be attained unless immediately. He was of a nervous organization, and, had he been a woman, would have excited a suspicion of hysteria upon certain occasions. His habits were most exemplary.

About nine months before D. was placed in Brigham Hall, it was noticed that he had changed, that he was more irritable, unreasonable, and inclined to mental depression and confusion. Attacks of epistaxis, which were becoming quite frequent, afforded temporary relief. About four months later, he was startled by the sudden death of his father. The morning of the day of the funeral, in driving from his home, he called at the cemetery to see if the necessary arrangements had been completed, and then went to a barber's shop. In the chair he apparently fainted, but soon was able to go to the homestead where the writer saw him. His face was flushed, head hot, and extremities cold. It was with great difficulty he was induced to accept advice and treatment, and he later insisted upon going to the cemetery, and then to his home. All he was ever able to recall of the events of that day, after he left the cemetery in the morning, was an indistinct impression of black veils. He rallied in a few days only to become more irritable, to conduct himself more strangely, to neglect his business, hide money and other articles, and to disfigure the grounds by the injudicious trimming of fine evergreens. About this time he must have fallen while standing upon the ground, for he found himself lying down, and quite severely bruised. The hallucination of a large man attending and directing him gave him anxiety and annoyance, as he was almost powerless to resist him. For a time he was unable to drive because of vertigo when in a vehicle. At length he became delirious and violent, but when calmer he was placed in the hospital with his full approval. He was tractable, gave little trouble, rapidly improved, and after five months was discharged as "greatly improved."

Before he left the hospital he began to complain of a

disturbance of circulation in the right arm, of numbness, coldness and slight loss of power. His life outside was unfavorable and excited painful emotions. He became depressed, confused, suspicious, hostile, and hemiplegic. His hallucinatory man returned. At his urgent request he was readmitted to the hospital four months after his discharge. His right leg had regained some power, but his arm was utterly useless. Six months later he left the hospital, having regained about the normal use of his leg, and the partial use of his arm. He had mentally recovered. He became able to work and to assume responsibility. Once when plowing he fell over the plow as if struck, bruising himself seriously, but regained consciousness almost immediately. This fall, together with the one previously mentioned are the only suggestions of epilepsy. About three years after he left the hospital the second time, he had a period of depression, suspicion and irritability, which did not interrupt his work, and soon passed away. He did not again relapse, but ultimately died of typhoid fever at the age of forty.

From childhood D. was a sleep-talker. Two other members of his family talked when asleep, but usually became silent when questioned. The tendency apparently came from the paternal side. He talked some as a child, more freely as a young man, and improved with years, particularly in relating what he saw taking place here and there. His conversation assumed a wider range, and was more like that of the waking state. He talked best when perfectly sane, when in good spirits, and when slightly fatigued.

D. easily fell asleep when sitting or reclining, particularly at night, and was aroused with difficulty unless his foot was grasped at the instep and pulled or twisted, when he awoke instantly, and in a clear frame of mind. Usually he resented the imputation that he was asleep, though sleeping soundly; but when asleep in the presence of others he several times put out his foot, at the sound of the fire bell, and cried, "pull my foot and let me go!"

His eyes were always tightly closed in sleep. His actions were natural, with one exception to be noticed later, and as much in harmony with the subject of conversation or thought

as when awake. The senses of hearing and feeling were more acute than in the waking state, with taste and smell usually natural. He spoke freely, suggesting or entering into conversation, or expressing ideas passing through his mind. He spoke as if awake and all his senses active. His conversation was coherent, rarely unreasonable in the least degree, to the point, and free from the incongruous characteristic of dreams. Snoring often punctuated his remarks in a most ludicrous manner.

In sleep he manifested a clear memory, the memory of the waking state passing over into that of the sleeping, that of the sleeping into the sleeping, but never that of the sleeping into that of the waking. It was the invariable testimony of all who observed him that he never brought into the waking state the slightest recollection of what he had seen, said or done when asleep. The writer tested this many times and in many ways. Waking, instantly dispelled regret or anger, or the memory of an act done to him a moment before.

His conversation and manner were less constrained in sleep, his power of imitation remarkably increased, and his singing more tolerable. He was never in doubt as to his identity, though he often was as to that of another. Usually he knew the person talking to him, but if the subject of conversation was of a private nature, or involved another, he was very wary as if he had been trifled with. To make himself certain, he would grasp the ulnar side of the wrist between two fingers, run down to the fingers, and then down the inner side of the fingers. He came to tell the writer by his ability to move the left little finger as if partially dislocated. But once he challenged the writer to prove his identity by describing the paper on the parlor wall at the old homestead. The paper was described correctly, but the attempt to tell more than he knew as to other parts of the house brought down upon him great ridicule, and the charge of fraud. At length he did tell so many things correctly that the sleeper exclaimed, "well, I guess you are Dr. B. (snore); what do you want?"

Always careful about making unkind remarks, he was particularly so when asleep; indeed, he frequently declined to repeat a remark of that character he had made to an individual

when awake. It was impossible to induce him to betray a confidence reposed in him when awake. Usually he regarded as confidential actions he witnessed in sleep which if known would compromise an acquaintance.

Humor was often manifested, for he laughed, joked, and spun yarns like the true fisherman he was. No fatigue was manifested after a night of excessive talking. He dreamed dreams of the ordinary character, and often recalled them when awake. He refused to be hypnotized.

If he walked in his sleep, it was for a definite object, as to close a window or to conceal a watch, acts as rational as others perform when awake. Once at the hospital he walked to carry out a dream he recalled in the morning.

He often ate apples when asleep, but occasionally called them oysters. Unfortunately those about him tested him little concerning taste and smell.

In his second attack of derangement, he recalled events that occurred during the first, and of which he was not aware during the interval, as if those mental states were similar to his sleeping states. In this attack he told his family where to look for articles he must have hidden while the first was developing, and most of the articles were found.

He complained to one tuning a guitar in his sleeping presence that it "hurt his musical nerve," but told when the instrument was in tune, as he was unable to do when awake.

D. informed a cousin, at whose house he was sleeping, that his sister had just lost her situation in New York because of sickness. In the morning the cousin became certain that the sleeper was as ignorant as himself of such an occurrence. The next mail brought a letter confirming the statement.

D. was the bane of his brothers as a bedfellow because of his talking. Once he met his match in a brother who returned home after an absence of two years in distant parts. While sleeping together they exchanged news, and rehearsed personal experiences, punctuating the same with snores and laughter, to the great amusement of auditors gathered at their bedroom door. Alas, it was a wasted visit, for they recalled nothing whatever of the occurrence upon waking in the morning.

Passing a night with a brother, he retired early, but in time became aware that the brother and his wife were taking a lunch. The sleeper became very abusive, claiming that the lunch was postponed until he had retired in order to "save provisions." His anger when asleep was most amusing, for his thoughts were most cuttingly expressed, and it was certain to instantly depart with his sleep.

A bunch of important keys was lost, and our friend joined with others in the fruitless search. While the subject was being discussed in his presence when next asleep, he cried out, "don't you see them? they are under a bench in the kitchen; the puppy carried them there, and he chewed the tag." They were found in the place he mentioned.

While sleeping, he asked the writer to write a certain letter which would be most injudicious, as it was to deal with family matters. The promise was given to do so if the sleeper thought it wise when awake. Of course he did not recall his request the next morning. But so many times did he later, when asleep, accuse the writer of not being a man of his word, that, at the request of his family, he asked the writer what he had promised. The satisfactory explanation was carried over into his sleeping state, resulting in no further accusations.

One night after a succession of recent burglaries had been discussed, D. lost his watch. Several days later he asked to be questioned concerning the watch while he slept. When the brother mentioned the subject, the next night, the sleeper examined him most carefully as to his identity, required him to get down close to him so no one could hear, then, hesitating he demanded money for the valuable information, but was satisfied with one cent as that "showed good will." He directed the brother in a most minute manner, to go east, south and west, to the head of the stairs, down three steps where, behind a red stripe in the riser of the carpet, he would find the watch, done up in a handkerchief to muffle the sound of the ticking. The watch was found exactly as the sleeper had stated.

When asleep, he told the time when the face of neither clock nor watch was before him. If a clock struck when he was in a talking mood, he would count aloud from the previous hour, backward, calling the correct hour at the last stroke, as, if the

hour was six, he would say "5, 4, 3, 2, 1, 6!" Why he did so he would never tell.

It was noticed by those about him that in sleep he made business calculations more readily than when awake, and with great rapidity. His peculiar method could not be discovered, as he desired it should be, for, if his questioner did not quickly comprehend, the sleeper became impatient, and had "no time to teach a fool." Having lost several dollars on an article, he went into a minute calculation to ascertain how much it would be necessary to raise the price of many other articles he had for sale to make himself good. Those who followed his calculation saw it was correct. He made change correctly, holding each piece of money up before, or at the side of, tightly closed eyes. One evening he fell asleep in a room where cards were being played. The score became confused, resulting in a dispute in which he joined. Amid snores, he quickly corrected the score, and kept it accurately the rest of the evening. His advice to one as to what he should bid was not followed, but the result showed he was correct. He appeared to have all the cards in his mind's eye.

While sleeping in the presence of his family, a friend bought some cattle from him, clinched the bargain by a slight payment, and made out and presented a bill of sale which the sleeper signed with a pen, as he declined a pencil. As was his custom when asleep, he signed without looking at the paper, and the signature could not be distinguished from that of his waking moments. Of course the bill of sale was destroyed, but the circumstance gave D. much anxiety lest designing persons might take advantage of him. However, he felt comparatively safe after he had given his sleeping and waking promise he would never when asleep sign such a paper, note or check, without the sanction of the writer.

Our somnolent friend was extremely temperate, but one night, after long badgering by his bedfellow, he drank half of a bottle of wine entrusted to him by his employer. This act was followed by a prayer in behalf of temperance, so fervent, so impassioned that it would have thrilled a convention of the most radical prohibitionists at its opening session..

He was a conscientious and religious man. Occasionally

when asleep he would have a prayer meeting all by himself in the presence of a convulsed audience. He repeated passages of scripture, sang, exhorted and prayed, in the most solemn manner, injecting a profusion of amen and selah snores.

While sleeping in the presence of the writer, he heaved a deep sigh, and said in a regretful tone, "I wish I was a better Christian!" He admitted he was a church member, but felt he was not as good as he should be. In reply to questions, he stated that some of his family were members of a church in a neighboring village, while some of his brothers were members of a church on the other side of a body of water, a mile wide, which they crossed by sailing or skating. Then, after a pause, as if reflecting, and after a deep snore, he said: "I sometimes think that some of my brothers would not have been as good Christians if it had not been for that lake!" A rare touch of nature!

A pack of cards was discovered in a drawer of antique furniture D. was showing to a cabinet maker. At that moment a church sister passed by on that side. Soon the two brethren were convicted, in the minds of certain elect females, of gambling. Shortly after, as D. was the only man present at a prayer meeting, it fell to him to take the lead. Seeing his opportunity, he opened the Bible to "The General Epistle of James," and selected for subjects of reflection such pertinent passages as, "If any man among you seem to be religious, and bridleth not his tongue, but deceiveth himself, this man's religion is vain." "And the tongue is a fire, a world of iniquity; so is the tongue among our members, that it defileth the whole body, and setteth on fire the course of nature, and it is set on fire of hell." Conviction welled up like a fountain! In plain business style he related this circumstance when awake; but later, when asleep in his chair, he was led to repeat it. The latter account was indescribably ludicrous, yet clearly and correctly stated. His face beamed with humor as he rehearsed the good points he made. But as he brought up each individual sister, inimitably depicting her mannerisms of attitude, voice, and expression of countenance, as she stated that if she had said any thing that was not correct, or had failed to manifest a Christian spirit, or had grieved or wronged

the brethren, etc., etc., she craved forgiveness,—the laughter of the writer knew no bounds, for here was a scene for one hundred nights! A very retiring person once told the writer that, when behind a mask of mere burnt cork, he felt as if his real self was concealed, and then he was able to act with perfect abandon. So it seemed that behind the mask of sleep, our friend manifested an expression of countenance, a humor, a power of description, and an aptness of imitation that he could not even approach in his waking moments.

When quietly sleeping, D. apparently saw what was taking place not only near him, but several hundred miles away. A friend was accustomed to sleep at the home of the sleeper when he came to the village to see his intended, and to return in the early morning. At length he was obliged to pass the nights elsewhere to conceal his visits from D., who would herald his approach to the house, and talk of his girl in a voice that informed the neighbors, in summer, about the two souls with but a single thought. But the friend did not escape, for one night the sleeper cried out that he and his intended were turning a certain corner. A brother took note of the time, met the friend at the early train, and verified the statement of the sleeper.

Late one night, while returning home on a steamer, in the company of friends, he fell asleep. He became much distressed because he thought some persons were taking his tomato plants out of their bed. The plants were watered in the early evening, but in the morning not one was to be found. Late at night the dog had barked loudly, and was with difficulty quieted.

One Sunday night after church service, D. laughed aloud, and told his mother she had better look out for her daughter, many miles distant, as a certain gentleman had caught up with her, and was escorting her home, a gentleman who was not accustomed to wait upon her. A few days later the lady was confronted, and was obliged to admit she had an acutely observing, but very uncomfortable, brother. He also told many things about his brother S., as, "there goes S. around the corner; he has caught up with Miss J." Unaware that S. was out of town, he saw him in a neighboring city, and told the

place where he was. Again, one night the brother unexpectedly met an acquaintance and took him to the theatre. There D. discovered him at the end of a certain row of seats which he named to those about him.

He aroused the curiosity of a friend sleeping with him by laughing, and calling out the name of the friend's brother who was several hundred miles away. Nothing could induce him to tell what he saw. When awake he promised, under the pledge of secrecy, to tell the writer when next asleep in his home. But he did not do so, pleading it was not right to tell about a friend. He again promised, and, to make the promise stronger, seven cents were to be given him at the time of the proposed revelation. But he again refused; yet after apparently considering the matter and going through an elaborate examination to determine the identity of the questioner, he exclaimed, "let me see your money!" He took it, counted it carefully, put it in the pocket of his night shirt, replaced the handkerchief, and then, putting on a most contemptuous expression of countenance, coolly remarked, "you are a smart business man; you have given up your money, and you have not your information!" At length an appeal to his honor opened his lips. What he stated was later fully verified when the writer questioned the friend.

Occasionally his statements took on, to some extent, the character of foretelling. Once he was overheard to say he was going to receive a letter from the writer by a certain mail, a letter he had no reason to expect. A letter written the night of that statement was received in the mail stated. He was asked by a brother starting for the office, a mile away, if he would find a letter for himself, and from whom. With a dignity he could assume only when asleep, he replied that he would receive a letter (as he did), and he would ascertain the name of the writer when he opened it!

He caused much surprise when he predicted correctly that two acquaintances would marry within a certain time, although their engagement had not been announced or even suspected. In several instances he made correct predictions, to the embarrassment of those present, as to an increase in population, when not even the most intimate friends had been

informed of the fact, the prospective fathers had not informed him, and he himself was able to prove an alibi. When questioned as to how he knew a certain event was going to take place, he would occasionally say, "see it!" Usually he would say he saw a star and a cross bearing a certain relation to each other, and he would trace the relation upon the wall by the side of the chair, couch or bed where he was sleeping, or upon his elevated palm. It was evident the position of the arm of the cross was of special moment, and nearly so the approach of the star to the cross. When they separated, or a veil came down between them, he was unable to predict more. Not infrequently, if he foretold a fire, or the fire bells rang, he saw the star and cross accompanied by a cloud. If asked if there was to be a fire, he would examine his palm, and would say "no" if he did not see the star and cross in a certain relation. No full explanation concerning the relation could be secured because of the impatience of the sleeper by reason of the "dullness" of the questioner.

For several years there were numerous fires in the village where D. resided, many of them undoubtedly incendiary, for there were only the normal number after the suspected one was arrested, and had committed suicide before the day set for his trial. D. often told his brother, a volunteer fireman, there would be a fire. Such confidence did his statements inspire, the brother frequently had on his fire suit before the bell rang, and occasionally reached the outer door. Again, the bell would ring, and the sleeper would direct the brother, while dressing, as to the shortest route to meet his company. On one occasion the brother returned from one fire only to be told it was useless to undress as there were to be three fires that night, and there were. Early one night he said there would be a fire before midnight, and the brother was not surprised at the fire which occurred. Once he warned his brother not to go upon a vacation of a week, as there was to be a fire, and his company would go by their home. The brother told him to take care of the fire, which did occur as stated. In no way was it possible to connect D. with the origin of any fire. His predictions related to accidental fires as well as those that were incendiary.

D. took care of a summer cottage less than two hundred feet from the house he occupied. One winter morning, he and his brother inspected the cottage, and found it in order without and within. All that afternoon they skated on the lake in front of the cottage, and returned home at dark. D. went immediately to the sitting room, and fell asleep upon the couch. Soon he said there would be an effort made that night to break into the cottage, but it would not succeed. He also stated that he would not be able to go upon the lake the next day, as planned, as he would have to go to the village to inform the owner of what had happened. While asleep after supper, he repeated the statement. He did not leave the house that night, but the brother took the precaution to examine the outside of the cottage before retiring. About midnight D. aroused the household by screaming "halt, halt, halt!" from his room on the side of the house towards the cottage. In the morning it was discovered that the blinds of a French window were badly broken, and the front door was also damaged by an effort to force it open.

Enough! Instances similar to those already related might be multiplied, but only to your weariness. The question that ever arose in the mind of the writer as he examined the sleeper, was, do not all of us when asleep see, as he appeared to see, what is passing on around us, but some good spirit keeps us from talking in our sleep?

PARANOIA, ESPECIALLY WITH REFERENCE TO ITS DEFINITION, SUBDIVISIONS, AND ITS SO-CALLED ACUTE VARIETY.

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Paranoia appears to be a practically inexhaustible mine for those who delight in discussing and writing about psychiatric subjects. It cannot be said however that the writings on the subject have as a rule been useless, although not a few of them contain neither new facts nor a statement of new points of view. In this article attention will be especially directed, after a necessary discussion of the definition and varieties of paranoia, to the question of the existence of an acute and recoverable form of this mental disease. It is essential at first to give as exact a signification as possible to paranoia. This is by no means an easy task, as has been demonstrated by the efforts of writers in several languages.

The word paranoia is derived from the Greek, or rather it is a Greek word meaning madness or insanity. The word is occasionally met with in well-known Greek writers like Aristotle and Plato.

The synonyms of paranoia vary in number according to the views of different authors. By some the word is given a much wider range than by others, and not a few even of recent writers avoid the use of the term.

A study of the most important of the numerous recent classifications of insanity which have been published from the time of Stahl to the present, shows that the cases now usually classed in this country, in Italy and in Germany, under the name of paranoia have been included under various designa-

tions, some of them comprehending more than others. Reasoning mania, monomania, primary delusional insanity, chronic delirium, progressive systematized insanity, affective insanity, moral insanity, instinctive insanity, partial intellectual mania, general moral mania, and partial moral mania, and obsessional cases, include cases now frequently classed under paranoia, whether few, many or all depending upon the particular point of view of the author. It has been a favorite exercise with many writers on psychiatry to subdivide paranoia with more or less minuteness, sometimes to an absurd and grotesque extent, at other times with much appearance of reasoning for their subdivisions. Into these subdivisions which are made on very diverse bases we cannot go here, except to recall the fact that such forms as the so-called religious, erotic and political paranoias have many representatives in the general class of paranoiacs, while monomania in the strict etymological sense is not often observed.

Regis places cases usually classed under paranoia or monomania by American writers into two subdivisions, which he separates generically. One of these classes, which he designates as systematized progressive insanity, with three stages, (1) hypochondriacal insanity; (2) persecutory, religious, erotic, political, etc., insanity; and (3) ambitious insanity, he places under the generic head of functional alienations. The others he classes as phrenasthenias, including multiple delusions of degenerates, reasoning insanity, moral insanity and instinctive insanity, placing these phrenasthenias under his second subdivision, constitutional alienations or degeneracies. He, like Magnan, apparently recognizes a form of systematized progressive insanity not associated with degeneracy, although admitted to be sometimes if not always hereditary. He teaches also that progressive systematized insanity occurs in cases of the phrenasthenic form of the insanity of degeneracy. I believe it is a more practical method to class most of the cases which Regis regards as phrenasthenias under paranoia, including here also his systematized progressive insanity.

I have never been able to see any good reason why the more regular form of systematized insanity should be entirely separated from the more or less irregular types of the same

disease. A long personal experience makes me believe that both of these so-called groups have a basis of degeneracy, no matter what may be the appearance of cause in one or in the other. In this, I am in accord with Ball and others, and especially with the Italian school, who class all the systematized insanities, no matter how small or how great is the degree of systematization, under the general term paranoia. As is well known, Magnan and his followers hold to a different view.

Leaving that the designation paranoia should be a very broad one, I have always found it difficult to subdivide it in a satisfactory manner for teaching or other practical purposes. Speaking with regard to the symptomatology presented by the patient, chronic paranoia (and it will presently appear that I believe that the disease is essentially a chronic one) can be conveniently subdivided into paranoia of regular type or progressive paranoia, paranoia of irregular type, or aberrant paranoia, and rudimentary or abortive paranoia. Under the first head I would include cases of systematized progressive insanity. This progressive systematized form of paranoia may depart more or less from its typical mode of development and progression and yet in a general way preserve its outlines. Irregular or aberrant paranoia may be separated from rudimentary or abortive paranoia, because many aberrant forms of this disease are seen and yet their manifestations are so striking and persistent, and in some cases so varied that they deserve to be classed as more than merely rudimentary. Here should not be placed all the phrenasthenias of Regis, as under this he classes disharmonies, neurasthenias, and even idiocy, imbecility, and cretinism; but here should be included his degenerates with multiple delusions and cases of reasoning mania, moral insanity, and instinctive insanity. Under rudimentary or abortive paranoia should be included those cases with delusions in the making, that is, cases with obsessions, fixed ideas, impulsions, aboulias. The disharmonies of Regis, under which he classes defects of equilibrium, originality and eccentricity might be placed under either the aberrant or the rudimentary forms, but would probably better be omitted entirely from the domain of insanity.

Regis includes obsessions and obsessional states (imperative concepts, imperative ideas, besetments, compulsive ideas, impulsive ideas, fixed ideas, abouliias) under the general head of neurasthenia, making of neurasthenia, congenital and acquired, a form of constitutional insanity. Others erect special forms of insanity, as the compulsive insanity of Kraepelin, and place obsessions of different character under this designation. The writer believes that it is unwise to formulate a neurasthenic insanity, and this in spite of the fact that neurasthenia and neurasthenoid states enter into the clinical structure of some forms of insanity. The use of the term neurasthenic insanity has also practical disadvantages both in clinical medicine and in medico-legal work. In this country at least the term neurasthenia is understood to apply to a large class of cases suffering from nervous exhaustion and irritability, but not to be classed with the insane. Obsessions and obsessional states need to be relegated to that place in the nosology of insanity in which they can find states and conditions of mental alienation most like themselves—their blood relatives in psychiatry.

Paranoia, as the term is used here, has a hereditary or constitutional basis; in its most typical and regular form it has systematized delusions and progressive march for its most important features—heredity, progression and delusions are its sign manuals. In its more irregular and yet fairly well-defined forms, as in some of the phrenasthenias of Regis degeneracy is at its foundation. It is best to class obsessions and obsessional states under the general designation of rudimentary or abortive paranoia, following Morselli and Tamburini in this particular.

The only practical objection against the relegation of obsessions to rudimentary paranoia is to be found in the fact that many of the subjects of obsessions are not to be regarded as technically insane. This must be admitted; some cases, however, are on the borderland of insanity, others with obsessions of great intensity and persistence must be regarded as really insane. A prodromal obsessional state is observed in some cases of dementia praecox and in paranoia of regular and

irregular type. Delusions sooner or later become apparent, and still later become marked.

Whether or not we should recognize nontoxic acute paranoia as a separate form of mental disease does not yet seem to be fully settled, the majority of psychiatric authors disregarding the term, at least in their formal classifications. Some of the best authorities, however, recognize it as a desirable descriptive designation.

Acute paranoia may be defined as a form of mental derangement, sudden or rapid in its onset, usually occurring in a person with a degenerate or a neuropathic heredity, characterized by delusions and hallucinations similar to those occurring in chronic paranoia, but with a less stable and definite systematization than those of chronic paranoia, the disease terminating in recovery, at least from given attacks, although there may be recurrences of the affection. Cases corresponding to a descriptive definition like this are undoubtedly seen as toxic affections, and the term toxic should be used here in a broad sense to include more than the effects of the use of drugs like alcohol, morphine and cocaine. In one predisposed by heredity, syphilis, infectious fevers, septicemia or any other disease or condition which may cause the blood to become poisoned may produce a symptom-complex which has more or less verisimilitude with that of paranoia. These mental disorders usually have particular designations, as for instance, persecutory delusional insanity of alcoholism, the hallucinatory insanity of this or that drug or of this or that form of fever. The best defined forms of toxic acute paranoia are undoubtedly those observed in connection with alcoholism, morphinism and cocaineism. To these, however, it is not my purpose to further direct attention in this article. Non-toxic acute paranoia should have a symptomatology similar to that which is seen in drug cases and corresponding in the main to definite phases in the history of chronic paranoia.

The problem of the existence of a non-toxic acute paranoia is important in the first place because of its bearing upon the question of prognosis. If a case of true paranoia can make a full recovery, it behooves the physician to be cautious as to giving unhesitatingly a prognosis of incurability. It may be

of importance medico-legally in several ways, as for instance in connection with the question of the advisability of removing the committee of the estate of one who is alleged to be afflicted with paranoia or with the question of the responsibility of one although acknowledged to have been a paranoiac, is alleged to have recovered.

A true acute paranoia not due to drugs or to the action of some virus or infection is so rare that its existence may be doubted; nevertheless, cases are occasionally met with, both within and outside of the walls of hospitals for the insane, in which it is necessary to closely study the patient and analyze his history in order to determine whether or not the case is this form of mental disorder.

While preparing this article, I took occasion to consult three alienists, each with experience of many years in hospitals for the insane. These physicians and two others of long experience outside of institutions were in accord with each other and with myself in the belief that cases which can be properly classed as paranoia rarely, if ever, recover, although apparent recoveries are sometimes seen.

From time to time, and especially during the last decade, cases designated as acute paranoia with recovery have been reported in journals and monographs and textbooks. References might here be made to several cases reported within a very recent period.

Dewey (Dewey, R., *Am. J. Insan.*, v. xl., No. 3, July, 1903) has reported a case of apparent recovery from paranoia. At the time of alleged recovery the man was about forty years old. When about twenty-five years of age he had an attack of sunstroke while living in a subtropical climate, and after this he showed unusual sensitiveness to heat. Following this attack he showed hypochondriacal symptoms and seemed in other respects changed. He lived a life of self-indulgence and display, although not having much personal means. His first delusions were with regard to personal enemies and persecution by them. His affection and admiration for a young lady, a relative, were not reciprocated and were discouraged by her friends and relatives, this tending to make him morbidly envious and suspicious. He soon began

to believe in diabolical plots which included in their web capture, deportation, imprisonment, poisoning, defamation of character, and even murder. He had also the common paranoiac delusion of pursuit by detectives. After a time he began to go armed and was taken into custody, but was released. He soon began to develop other delusions, and auditory hallucinations. He had no history of alcoholism or venereal disease. When he first came under the care of Dr. Dewey, physical examination showed diminished knee-jerks, sluggish pupillary reaction, swaying with eyes shut, and clumsiness in walking (but according to the reporter, not true inco-ordination). Dewey did not regard these conditions as evidences of paresis but rather of his general nervous state and possibly of the actions of drugs which he had taken. After he came under observation he developed many new delusions, especially with regard to poisoning or contamination of his food or medicine. For the detailed account of his hypochondriacal and other delusions the paper of Dewey should be consulted. In less than two months he was decidedly improved. With many ups and downs, including an episode of religious zeal and exaltation, he went on to recovery. In about four months after coming under observation and about eighteen months after the first appearance of his delusions of persecution, the patient, Dr. Dewey says, was sane, and was reported to him as such twenty months after discharge. The reporter of the case holds that "the essentials of paranoia, slow development of systematized delusions, without marked intellectual weakening and without extreme affective or emotional disorder, were present and warranted the diagnosis, and in view of the fact that paranoia is agreed to be a psychosis of incurable nature by both writers, the disappearance for nearly two years of all its symptoms seems worthy of record."—(Dewey.) In a footnote to the article it is stated that since the discharge of the patient from institutional care, the proceedings by which he was adjudicated as insane were annulled by the court.

This case is certainly one of great interest and instructiveness. Several comments however are suggested by its consideration. In the first place the time elapsing after report, less than two years, is not sufficient to establish the diagnosis of

recovery, although it is to be presumed that the patient has returned to his state before active delusions and hallucinations were present. The case would seem to come about as near to recovery as is ever seen in well-reported cases of paranoia. Two other matters should be taken into consideration. In the first place, the exciting cause of his earliest tendency to hypochondriacal delusion and change from his usual characteristics followed a sunstroke in a subtropical climate. It is well known that one of the approved modern theories of the manner in which sunstroke or heat stroke acts is that a toxemia is induced by the action of excessive heat, this toxemia in its turn affecting the nervous centres and producing psychical and in some instances physical symptoms. It is not impossible that a condition of mild chronic toxemia may have been present after the more acute toxic state which immediately followed the sunstroke. I would not however lay too much stress upon this point, simply saying that it is worthy at least of passing consideration. In the second place, the history of the case indicates that the patient for some time before admission to the sanitarium or hospital had been using drugs, presumably of a sedative, hypnotic or of a narcotic character, or combinations of drugs of these characters. The use of drugs in such a case, on a basis of slight or moderate hereditary predisposition and a condition the result of toxemia from sunstroke, may have been sufficient to light up an acute or subacute persecutory insanity of the paranoiac type.

Gannouchkine (*Jour. Mental Pathology*, v. 3, Nos. 2 and 3, 1902), who believes in the existence of the nontoxic variety of acute paranoia, gives two illustrations of the disease. In one of these however there is a distinct history of both primary and secondary syphilis, and it may be doubted whether the case belongs exactly where Gannouchkine is inclined to put it. In the case which seems best to deserve the name of nontoxic acute paranoia, the patient was a student, twenty-three years of age, with a history of some neuropathic tendencies in his family. He had always been suspicious and depressed, and had isolated himself. For many years he showed tendencies to be suspicious and doubtful of members of his family, his friends and associates. After a year or two he

began to develop delusions of persecution. His delusional condition vacillated, and he suffered from insomnia and restlessness. He showed a great tendency to argumentation. He thought he heard hints, saw gestures, and believed that a plot was formed against him. The delusion of poisoning developed. Eventually his general health improved, his delusions disappeared, and he was discharged as cured. The account of this case, which seems to support the contention for the existence of a non-toxic acute paranoia, is not however extended over a long enough period after convalescence to establish the fact of complete recovery. Here, as in cases seen by the writer, it is not improbable that the paranoiac symptoms will recur with or without some exciting cause.

Cases supposed to be deserving of the designation of non-toxic acute paranoia are usually of three kinds: (1) Paranoid cases which have so large a measure of mental health and control as to make the existence of insanity in a technical sense doubtful and sometimes a matter of dispute, these cases having at times episodes of excitement which may take either a maniacal or a melancholiac form; (2) cases of toxic paranoia in which the etiological toxic element is concealed or overlooked; (3) cases of true melancholia which pursue an irregular and protracted course before recovery, and which often show an unusual or even a bizarre symptomatology.

With regard to the first of these classes, objections may be made to the use of the term paranoid, and yet like hysteroid, epileptoid, and other similar designations, it is serviceable in expressing the idea of an imperfectly developed paranoia. Some patients of this class illustrate the occasional practical value of using the terms medical insanity and legal insanity. According to the degree of their abnormality, or it may be according to the view of those who examine or pass judgment, such patients are or are not regarded as insane, or they may be classed as medically but not legally of unsound mind. It is not necessary for me to multiply illustrations of individuals of this type. They are known to all alienists and neurologists, and under one or another designation have been described and discussed by numerous writers; but the fact that they are likely to have explosions of an acute and often

of a dangerous kind is not everywhere so clearly recognized. Let it be understood here that I refer to paranoid cases, not to those well-known and numerous instances of easily recognized paranoia in which the patients have episodes of delirium and frenzy. The paranoid or paranoiac basis is not infrequently overlooked in the particular class of cases under consideration, and the patient who assaults another or attempts homicide, if regarded as insane at all, may be looked upon as an instance of acute mania, or when a suicide is attempted, as one of acute melancholia; or in the third place, a case such as this is set down as an instance of acute paranoia with recovery, when the attack passes off the patient returning to his original state, which is not one of easily demonstrated insanity, but is by no means one of normality.

I have recently been interested in examining and testifying about what appears to be a paranoid case with an acute or subacute attack which might be variously regarded as one of mania, melancholia, or acute paranoia. The patient in this case is a middle-aged man who came by inheritance into possession of a large estate. I could not learn much about his early history, but he showed peculiarities and eccentricities. Between four and five years before he came under observation he exhibited a tendency to loan, squander, and badly invest money, and also inclinations to excitement which probably had their basis in persecutory and self-important ideas. His first active mental trouble was attributed to business worries. He made two attempts at suicide, having on his person when admitted to the hospital the scar of an old self-inflicted pistol wound. During the early months of his stay in the hospital he was morose and depressed, and sometimes spoke of suicide. He seemed to be apprehensive of those around him, at least of some of them. He could not be got to fix his attention upon business or other matters that should have concerned him. As time passed on his depression became less persistent, and his condition gradually changed. He was often insubordinate and his general tendency was suspicious. He became violent in his antipathy to some of the physicians. On at least one occasion he made or attempted an assault on another person. He had a tendency to collect

clippings from newspapers, especially those which were illustrated in certain ways. These he accumulated in enormous quantities and sent large numbers to persons outside. He also tended to engage in prolix letter writing. According to the statements of one of the attendants, he showed an inclination to attract the attention and communicate with a number of the female employees of the hospital, trying to give them small presents; he had, in other words, a tendency to press his claims for admiration upon members of the other sex. He was egotistical, self-assertive, and hard to get along with, unless he could have his own way in all things. He did not appear to have been depressed, nor to exhibit delusions during the last two years of his stay at the institution. Several physicians who saw him before and after his admission to the hospital for the insane testified to their belief that he had persecutory delusions, was depressed, and suffered from acute melancholia with tendencies to suicide.

He was discharged from the hospital eventually, but up to the time when he was seen by the writer, had with him an attendant. Shortly after his discharge efforts were made by him through counsel to have the committee of his estate removed. This was opposed on the ground that he was not recovered in the sense that he would be able to wisely manage his property; it was thought that it might at least be better for him to be under observation for some months or a year before the removal of his committee. A prolonged examination showed no decided evidences of insanity, but indicated that he was probably a man of insane or unbalanced temperament, probably one to whom the term paranoid might well be applied. He answered intelligently the questions put to him, showing at times a tendency to suppress facts, although on the whole this was not the case. It was difficult to obtain information as to his conduct after leaving the hospital. It seemed to the writer that while he had recovered from his acutely insane condition, his future was a matter of grave doubt, and while he might be able with the assistance of others who were competent and reliable to look after his property, it was desirable in his own interest that he should re-

main for some months more on probation before attempting to do this.

The second class of cases in which acute nontoxic paranoia is incorrectly diagnosticated is that in which the etiologic toxic element is concealed or overlooked. Cases of this sort are of two kinds—in the first place those in which a little investigation shows the presence of some toxic cause like alcohol, morphine, cocaine, or an infection, and in which the paranoiac state passes off with withdrawal of the drug or removal of the infection and building up of the general system; and in the second place, cases in which acute symptoms are developed by a toxic cause because of the constitutional tendencies of the patient to paranoia. The following case is one which belongs to the latter class, one in which the symptoms of a true melancholia were present for brief periods, but in which on the whole the continuing condition was more like that of paranoia.

This patient was a woman thirty years old, whose father was living at an advanced age, but who had always been eccentric; one brother was peculiar, being not improbably a case of dementia praecox. The patient was physically healthy until after marriage, and was rather more fond of society and of general pleasure than of intellectual pursuits. One month after the birth of her first child, which took place about one year after her marriage, she first exhibited signs of mental derangement. She began to develop ideas that she had done wrong, could not attend to her affairs properly, became irritable and excitable, and finally unmanageable, so that she had to be sent to an institution. While there she would not take proper care of her person, became violent when efforts were made to change her linen, and at other times became excited and aggressive. For a time she was uncleanly and refused food, but later became better in these respects and improved greatly mentally and physically, so that she returned to her home. After a few weeks however she again became difficult to manage, and exhibited delusions with regard to some of her relatives and others, at times having spells of excitement and aggressiveness, always tending to untidiness or worse.

It was again found necessary to remove her from home and

put her under the care of constant attendants. Her condition at this time was not very different from what it had been two years before; she would strike and kick her nurse, and refused to bathe herself or allow the nurse to bathe her; she was inclined to be morose, and would give silly answers to questions. This case, so briefly sketched, is not unlike a number of others which I have seen, in which, on a basis of heredity, a patient with neuropathic tendencies, under some exciting cause, like a great nervous strain or child bearing, passes into an acute or subacute condition of mental disorder. In such a case it is hard to differentiate between melancholia and acute or subacute paranoia. While depression and self-condemnation were prominent symptoms for a short time, they were not persistent, and were never the most important manifestations. These were a tendency to delusions of persecution and suspicion, resistance to others, and excitement, with aggressiveness and destructiveness. After two years the patient is still deranged.

With regard to cases of true melancholia which pursue an irregular and somewhat protracted course, showing unusual and bizarre symptoms, but eventually recovering, it appears to me that these are not infrequently set down as cases of paranoia, and in some instances are recorded as examples of recovery from acute paranoia. In one of these cases, that of a woman of good family, of fair intellectual capacity, and of highest personal character, the patient became depressed and self-condemnatory, and had a not unusual train of symptoms with a religious background, believing that she had committed great sins and that she would be lost. Among other extraordinary delusions which obtained possession of her for a year or two was one that she was ravished nightly by the devil. At times her delusions seemed to have a tenuous systematization, but on the whole they were simply a series of assertions on an emotional background. She eventually made a complete recovery, and has remained well for a long time. This case was undoubtedly one of melancholia, although the peculiar character of some of her delusions and the manner in which she would talk about them gave the case some resemblance to paranoia.

TWO BORDERLINE CASES: WITH SUBSEQUENT SUD-
DEN DEVELOPMENT OF INTENSE SUICIDAL
PROPENSITY.

*C. Eugene Riggs, A. M., M. D.,
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Miss A., aged 31, occupation school teacher, consulted me October 9, 1902. She was born in Washington, D. C. Her father, a native of Switzerland, died in his thirty-first year of chronic dysentery; her mother, a German, living and well, aged 55. Miss A. moved west at the age of fifteen and graduated from the Teachers' Training School of Iowa in 1891.

In infancy she had measles, whooping cough and chicken pox; four years before consulting me, a slight rheumatic attack with neuralgia. Patient when a child was hit on the head with a hammer by a companion. At one time, also, during childhood, she rolled down two flights of stairs and was unconscious for some time afterwards.

Five years before coming under my observation she became subject to what she called fainting spells; the attacks coming on without warning about twice a week and lasting only two or three minutes. In one of these she fell to the floor. She was in her usual health until the spring of 1901, when her mother was taken ill; she nursed her and taught at the same time, doing other extra work as well.

In the spring of 1902, when she began to break down, she was much troubled because she could not control her thoughts, her mind constantly dwelling on profane, immoral and blasphemous ideas about the Deity. Being of a very religious temperament this gave her great distress and she blamed herself for harboring such unholy thoughts. She was frightened when left alone, especially at night. I placed her at St. Luke's

Hospital and for nine days after entering she was, as she expressed it, "at peace," but after that time the old ideas returned with renewed energy.

She had a presentiment that she would die at the same age and on the same date that her father died. As this time drew near she was exceedingly nervous, but before it really came she was better and had almost forgotten about it.

After the return of the distressing thoughts above mentioned, their presence was so constant that it was impossible to distract her attention from them. She was sure she was committing the unpardonable sin and was therefore predestined to eternal punishment. She slept very little and when alone was in abject terror.

It was very difficult at this time to find any sage subject with which to divert her mind; what was to the nurse the most innocent topic of conversation or most harmless of books would suggest to her some evil or blasphemous thought which would cling to her for hours and continue for days. At one time, when she was very much improved, the nurse took her to hear the Highland band. The picturesqueness of their dress recalled all her past distressing visualizations and perverted ideas and it required weeks to eradicate them.

She could not hear the Bible read, a hymn sung or a prayer offered without a desire to curse and blaspheme and everything most dear and holy to her was blackened with evil thoughts. Just what these thoughts were her nurse could not ascertain, the patient saying they were so vile that it would scorch her lips to utter them. Miss A. believed that her mental suffering was a punishment for sin, but as she gained in flesh and physical strength this idea gradually left her; the knowledge, however, that the cause of her trouble was physical did not lessen the evil suggestions. When out walking she would find new food for these in posters, lay figures and displays in shop windows, and even in chance words which she overheard on the street.

She struggled hard to overcome this tendency and gradually gain a good deal of control over herself. She began to take an interest in games, people and books, but in the midst of the most interesting game she would frown, shake her head and

exclaim "nonsense," "get away," or "do leave me alone." She would often awaken at night trembling at some terrible dream or thought, and it would require an hour or more to quiet her. She was possessed by an almost unconquerable fear that she would never be able to get away from these thoughts and that she would have to spend her life in struggling against them.

The menstrual periods were very irregular, and at their occurrence the mental symptoms were greatly exaggerated; her last menstruation during her stay at the hospital was very much better in this regard and while she was still troubled with evil ideas and "pictures" she was able to control herself and become interested in things about her.

When she left my care her general health was excellent. I do not think she had ever been so well physically, and while the obsession had practically left her she was in constant fear lest it should return.

A word of explanation as to what the patient meant by "pictures." They were the recalling of past visualizations, such for instance as improper drawings on blackboards, billboards of low theatres, the vile scribbling and defacement as well as the indecent pictures so often found in outhouses. It will be seen, therefore, that these were not hallucinatory but simply the revisualization of former perceptions.

Her so-called attacks of syncope were evidently minor epilepsy. She had a number of similar seizures while in the hospital none of which occurred in the presence of either the nurse or myself. The question naturally arises, what relation, if any, did the petit mal sustain to her illness, or whether it was merely an epiphenomenon?

When she was able to do without a special nurse, I found that she did better when every moment of the day was actively utilized and when she was held closely to the prescribed routine.

I have heard from her briefly a few times, but she has said little about herself. However, indirectly through friends I have learned that she has again, and most successfully, taken up her teaching.

In this connection it may be of interest to describe the case of Miss G. For weeks her symptoms were those of the border-

line and I was greatly perplexed as to the course to pursue. There were absolutely no insane beliefs. The patient was introspective, subject to spells of depression, a poor sleeper, selfish and restless. She constantly worried because she had sold a pair of horses that she owned and because of the expense incident to her stay in the hospital. When she came to consult me there was a smile on her face, but in a few moments she was weeping. During our conversation she admitted that she had thought of suicide.

Miss G. is 35 years of age. Her father died of consumption; her mother is living and well at the age of seventy-eight. She has one sister who is highly nervous and very hysterical, and who some years ago passed through a somewhat similar experience. I regarded her trouble as a *melancholia sine delirio* and not merely a hypochondriacal, hysterical condition. When I told the friends accompanying her that I believed Miss G. was a mental case, that there was a latent suicidal propensity and that she was very dangerous to herself, she simply laughed at the idea.

I of course advised hospital care. During the first month she gained physically and seemed so much more cheerful that I almost questioned the presence of any mental element. Naturally, never having been away from home for any length of time, she would be homesick and at intervals this apparent homesickness became very intense, when only positive prohibition, with the knowledge that I would enforce it, prevented her from leaving the hospital. Closer observation led me to believe that this was not nostalgia but really a morbid impulse to get away. She struggled hard to overcome it, saying to me that she did not understand why she should act so, that when well she had a strong will.

The depression increased and with it the desire to escape. At seven o'clock one morning about a month after entering the hospital, while the nurse was out of the room for a moment, she made a desperate attempt to get away; she showed the frenzy of a maniac, although apparently conscious of all her actions. It required three nurses and two orderlies to return her to her room. From this moment, for about two months, the suicidal propensity was ever present; I have never

seen it so intense in any other patient; the mania for self-destruction was simply terrific. She turned on the gas, she tried to strangle herself with her watch chain and with her handkerchief. When placed in restraint she would throw herself against the bed frame, and would tear sheets, pillow cases and her night dress with hands and teeth. The subsequent history was that of acute insanity. She was violent and noisy. There were no hallucinations and she expressed no delusions; her insanity was that of conduct rather than of intellect. There was a marked involvement of the moral sense; she would deny an action even while in the act. She developed also a cutaneous anaesthesia over the entire body.

She was cunning personified. Although in restraint and carefully watched night and day, having a part of the time two private nurses, she succeeded in secreting and swallowing pins and hairpins. While the hands were in restraint she worked wire out of the springs, and while the nurse discovered and took away from her many pieces, she succeeded in swallowing some. She broke a tumbler against her temple and tried to hide the pieces for the purpose of swallowing them. She also swallowed wads of gauze. She wrote a letter with a toothpick, on the margin of a paper she was reading, with blood from her lips.

On the morning of the seventy-sixth day of her stay in the hospital she awoke and said she had no more desire to kill herself, that the strange feeling in her head had left her. She slept naturally most of the time for three days and her recovery thereafter was uninterrupted.

She passed by stool a ten-inch length of wire, a pin and a hairpin together with some gauze. Just before leaving she vomited a wad of gauze, a pin and a bit of wire about two inches in length. She left the hospital apparently normal.

It will be seen that for a month after coming under my care Miss G.'s symptoms might have been a neurasthenia or an hysteria. I should have been justified in so regarding them. But years ago the late Landon Carter Gray said to me that in patients complaining of a distressed feeling in the head, insomnia, and depression, careful inquiry would almost inva-

riably show a latent suicidal tendency. The truth of this I have very frequently verified and it was the presence of this "clinical tripod" which made me regard Miss G.'s condition as a simple melancholia.

AMNESIA: CLINICALLY AND DIAGNOSTICALLY CONSIDERED.

*By Charles H. Hughes, M. D.,
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That wonderful Coryphaeus in Psychiatry of the early years of the last century, whom the medical profession and the people of America are just coming to properly appreciate and commemorate in fitting memorial, Dr. Benjamin Rush, had observed, as early as 1810 and 1812 that there exists with certain people "An oblivion of names and vocables of all kinds; an oblivion of names and vocables and a substitution of a word no ways related." "The oblivion of names of substances in a vernacular language and a facility of calling them by their proper names in a dead or foreign language, an oblivion sometimes of foreign and acquired language and a recollection only of a vernacular language." "An oblivion of the sound of words but not of the letters which compose them, an oblivion of the mode of spelling the most familiar names, an oblivion of events and time and place, with a perfect recollection of proper names and persons, an oblivion of names and ideas but not of numbers." "Sometimes, as in the extremely aged especially, there is an oblivion of the most recent important and interesting events." Though Rush included motor aphasia which had not, in his day, been distinctly described as such, he showed a hundred years ago the keenly observant faculties of the great clinician he was.

Benjamin Rush's knowledge of neurology and psychiatry was remarkable for his day and generation. Rush knew a gentleman who, meaning to call for a knife, asked for a bushel of wheat. He reminds us that Dr. Johnson, in the delirium

of dying "forgot the words of the Lord's Prayer in English, but attempted to repeat them in Latin."

He gives illustrations of these varieties of asymbolism from his own experience, the experience of others and historical records, as in the case of the Emperor Claudius, and the case of Sir Isaac Newton, forgetting the contents of his *Principia* and Haddle, the Burgomaster of Amsterdam who, expert in conic sections, having prepared a manuscript for the entertainment of his friend, the great Leibnitz, had forgotten everything in it. Rush tells of an old Spanish law, in illustration of the effect of strong drink in weakening or destroying the memory (alcoholic amnesia), that refused admission of any person to be a witness in court who had been convicted of drunkenness. He records the fright amnesia of Artemidorus, frightened at seeing a crocodile for the first time, causing the loss "of all the knowledge he had treasured up in his memory in the course of his life."

Among the causes Rush enumerates of oblivion of words and things (the aphasias and amnesias of our day) are intemperance in eating, drinking and venery, fevers, delirium, vertigo, epilepsy, palsy, apoplexy, lesions of the brain substance drying up an issue, the use of snuff, as in the case of Sir Robert Pringle, grief, terror, oppression of the memory in early life with studies disproportionate to its strength, the undue exercise of the memory on one subject, neglect of memory exercise and ceasing to exercise the mind in study. The instance he gives of the latter, however, is rather an illustration of the exhaustive reaction from overstudy. The tired neurones refuse for a time to functionate, and under nature's promptings take for themselves a vacation in the recuperative rest of inaction.

For treatment he recommended abstraction from all exciting causes, depletion, blisters, issues in the arms, elbows and legs, errhines, cold baths, cold weather, exercise and time. These all tended to divert and indispose the mind to its accustomed exertion, especially bleeding, which put a stop to all inclination for severe study and in those days when the profession had no vaso-constrictor medicines, as we have now, phlebotomy reduced the blood pressure and diminished or allowed

the vaso motor nervous system of the arterioles to contract the caliber of the arterioles in cerebral hyperaemic states of the arteriole system and in apoplectic vascular rupture.

The principles of treatment are much the same now as then, though some of the means are different, viz.: recuperation of the oppressed speech center neurones by brain rest, regulation of the blood supply and quality, withdrawal of causes and relief of the engendering or influencing disease by iodides, bromides, lecithin, hypophosphites, ergot, aconite, veratrum viride, and all medicines that aid and circumstances that exert vascular control over psychic neurone, tranquilization and repair.

Amnesia, as a premonition of paralysis of cerebral origin, has been known in this country since the time of Benjamin Rush, who cites several instances that came within his own knowledge, "one of them occurred to Dr. Priestly," and so far back as the time of Andral, you may find recorded in his classical "Cliniques," a record of memory perversion where the patient remembered everything but himself and his own existence, speaking of himself in the third person. Forbes Winslow also refers to this case and to others, among them a person who always spoke of himself as "*Le personne de moi meme*," that is the person the same as me, and to an insane soldier who believed he was killed at Austerlitz, and thought himself a badly made machine in imitation of himself, but this idea was an insane delusion rather than an amnesia.

Amnesia is simulated by the delusions of the insane as well as associated with insanity. It is also a precursor of insanity, as Gowers and other alienists and neurologists as well as myself have held. Insanity in many of its forms is an amnesia of personality, an amnesia as to the normal ego, an amnesia of the natural proprieties of person, position or place. There is an element of amnesia in delusion, though verbal amnesia is often foreign to insanity, some insane having excellent memories and are exceedingly voluble, as on the contrary others are marked by silence from delusion or verbal amnesia.

A man aged sixty-four years, without marked prostatic enlargement but who confesses to have passed the viropause or virile menopause, if I may use the terms as applied to men,

whose urine, previously normal, falls ill of la grippe and during the progress of the disease develops Eustachean and middle ear tinnitus, catarrh, vertigo and glycosuria.

Grip is a toxic neurosis and the supervention of the melituria is clearly a brain implication sequence. The grippe also developed rheumatic symptoms, in this case, which disappeared under salol, salycilic acid and acetate and iodide of potash, while bromides, colocynth, mercurials, peptenzymes and pancreatins brought about concomitant improvement in the head and water.

The history of such a case, the treatment and sequel, confirm the conclusions of cerebral origin of defective glycolysis, and to maintain this view in consideration of the neural relations of the pancreas, we need not dispute the functional relation of this gland to the destruction of sugar or its or their defect causing sugar to appear in the urine, nor need we deny the subordinate and secondary significance of disease or degeneracy of the islands of Langerhaus.

Amnesia is found sometimes associated with conditions which develop deafness. This has been called amnesia accoustica and with cerebral conditions that sometimes come on with suppressed menstruation and with the child-bed or parturient state, especially after the lochial flow should appear and from any cause is suppressed. The causative or associated conditions suggest the names amnesia amensis, amnesia suppressio mensis or amnesia lochiis suppressis. The physiopathological fact is that conditions that cause vaso-motor derangement either by vaso-dilation or vaso-constriction may and do affect the circulation in the head as well as in the pelvic cavity. The shock of parturition and two weeks more or less of lochial flow, with the added strain of lactation and low diet for a week or more as often enjoined by the obstetricians, weaken a woman's inclination and capacity to talk much sometimes, but amnesia is rare in the sex at any time—the sex is seldom stricken this way.

In the same manner amnesia results from suppression of hemorrhage sometimes, and likewise from excessive bleeding. You might call the latter in certain female states metrorrhagic amnesia, as you might call a brain weakened from

excessive nosebleed epitaxial amnesia. The wear and tear of rectal fistula or anal hemorrhoids, causing weariness of the flesh and amnesic exhaustion of the brain and mind, might by a parity of this sort of nomenclature warrant the surgeons, in imitation of some gynecologists, to speak of fistulous, haemorrhoidal, rectal or anal amnesia, but such designation would neither be elegant nor physiologically logical. But the rectum and anus may in reality, as you see, be a source, through exhausting irritation causing amnesia as well as other brain exhaustion or brain disease states. I have seen insanity associated with an exhausting fistula in ano and I have seen it disappear with the established physical recovery of the patient after the fistula was operated upon and thoroughly healed, aided by enforced chemical rest and nutrition. All pain, whether so remote as the rectum or so near as the meninges, irritates and exhausts the brain, if extreme or prolonged.

Our friends who especially work upon the nares, might describe a nasal septum reflex amnesia, but you must take their statements cum grano salis. A deflected septum, however, may be a source of irritation to the brain, especially if ulcerated or sore from cut or cautery or other cause. There is little harm to the head in a deflected septum that does not embarrass pulmonary aeration. Generally the contraction of one nasal passage is compensated by expansion on the other side.

Amnesia may be characterized according to its cerebral and systemic relations as amnesia acoustica or amnesia arising from psychical deafness, amnesia optica or verbal sight amnesia from brain shock or concussion as hysteric blindness or sehlinblindheit, amnesia cephalgica from other brain causes, amnesia veneris from venereal conditions, amnesia plethorica, amnesia asnaeimica, amnesia hyperaemica, amnesia seminalis from the conditions of blood or organism which engender the memory failure, amnesia pathamatica or emotional amnesia, amnesia alcoholica or amnesia temulencia, amnesia febrilla or febrisqua and many other forms according to the conditions which engender it, as for instance the amnesia suppressa mensis of lochii of the older writers, amnesia of epistaxis or of an habitual epistaxis repressed, amnesia of removed

hemorrhoids. We also have psychical shock amnesia and operative amnesia or post operative and exhaustion and shock amnesia.

Amnesia regarded as a paresis of the speech-conceiving and speech-forming powers of the brain and mind as contradistinguished from aphasia, which is a paralysis of the speech center, becomes an especially important symptom in diagnosis and prognosis, according as it is transient or permanent, light or grave, and according to the limited or extensive areas and the constitutional conditions involved in its causation and manifestations. It is an important symptom, signifying much or little, accordingly as we search out its causes and relations. It shows in the simplest form in transiently lost or impaired memory of spoken words (verbal amnesia), in inability to recall in writing, spelling or talking familiar words once accurately and easily written, spelled or spoken; in loss of memory of familiar historic events, historic or data amnesia; in obliteration of past personally related memories and retention of present self related memories (idiopathic memories), in lost habitual language, color, sound or sight memories, as in certain aphasias, and in recall and substitution of a long unused tongue, in loss or difficult recall of recent memory and easy recall of past memory, as in retroactive or senile amnesia, in loss of past personal memory with retained present daily memories of words and incidents (cerebral automatism or lost personal identity), and in retroactive amnesia, that is amnesia up to the date of the shock or after an attack of epilepsy, in which events from the beginning of the shock or paroxysm, and extending back to a more or less prolonged period before the traumatic or paroxysmal shock, as we see in surgical shock or violence.

I have recently concluded the treatment of a case of traumatic amnesia following a cerebral concussion coma, congestion and aural and nasal hemorrhage in which the individual regained power of speech first through whistling expressions; finally after many weeks normal speech power returned to him.

(To be continued in Author's book on the Asymbolics.)

SUICIDE AND INSANITY.

*By Gershom H. Hill, M. D.,
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The purpose of this paper is to determine to what extent persons who commit suicide are sane; to what extent they are insane, and to declare that self-destruction in this country, at the present time, occurs in persons who are neither sane nor insane. Incidentally, the motives for suicide, and the conditions attending it, will be considered.

I shall not undertake to review the subject of suicide as it occurred in ancient times, nor to make a distinction between superstition and insanity, but simply to state a few conclusions which are prominent in my mind. Esquirol, the leader of the French alienists a century ago, contended that all suicides were insane. Although this theory of the insane origin of the suicidal desire was advocated with much ability, it was not accepted by physicians, jurists, nor by scientific men generally. More recently, however, Dr. Forbes Winslow, in England, was firm in the belief that no sane man will commit suicide, but his fellow countryman, Charles Mercier, declares that "It is often assumed, not only by the verdicts of coroners' juries, but in the writings and speeches of thoughtful men, that a person who commits suicide must necessarily be insane at the time of the act. In this opinion I do not share. It seems to me that a man's circumstances may be such that he may upon a careful and comprehensive review of them, deliberately conclude that life is not worth living, that it is better to seek annihilation, or to take the chances of happiness or unhappiness in the future life, than to submit to certain and extreme misery in this."

Dr. Strahan, a barrister-at-law in England, also uses the following argument to prove that many persons who commit

suicide are not insane: "Woman becomes insane equally with man; if suicide were always the outcome of insanity we should have it equally divided between the sexes; and as the females preponderate in the general population, we should have annually a considerably larger number of female than of male suicides, just as we have a larger number of female lunatics.

"The real state of affairs is directly opposed to this. Instead of a large preponderance of female suicides we have, with remarkable consistency, three or four males to one female, and that, notwithstanding, the females being in a considerable majority in the population. This would go to prove that whatever be the principal cause of suicide in the present day it certainly is not mental aberration.

"There is one means whereby we can learn a good deal as to the frame of mind of the individual at the time he commits the suicidal act; that is, by a study of the mental state of those who have unsuccessfully attempted to destroy their lives.

"Of the 116 persons convicted of felonious attempts upon their own lives, only 4, or 3.4 per cent., were, after trial in open court, found to be insane. If we adopt this as a criterion whereby to measure the amount of suicide depending upon insanity, we can attribute to this cause only 75 of the 2,205 suicides committed during the year 1890."

To-day, in this country, many well-informed men, and the public as a rule, are inclined to take a charitable view of this subject, and to conclude that all persons who take their own lives are unsound in mind. Most of the modern writers realize that even with the use of the most carefully prepared statistics, the proportion of suicides who are insane can never be exactly determined.

Petit and Lisle, in France, attributed insanity to one-third of the cases. Morselli, the Italian statician, concerning suicide, states that observers generally regard the proportion as about one-third. Prof. Bailey, last year, in the Yale Review, gives the result of studying nearly 3,000 cases of suicide in the United States. In his table listing the assigned causes of suicide, insanity accounts for only 13 per cent. of all the cases. The other causes assigned are despondency 22 per cent., busi-

ness loss 14 per cent., ill health 13 per cent., disappointment in love 9 per cent., domestic trouble 8 per cent., fear of disgrace 5 per cent., grief 4 per cent., alcoholism 4 per cent., chagrin 3 per cent., miscellaneous and unknown 5 per cent. In some of the states the proportion was three men to one woman, in other states as high as four men to one woman. Forty per cent. of the cases were single, fifty were married, and ten were widowed, divorced or unknown.

In the methods by which life was terminated, shooting comes first in frequency among men and third in women, poisoning first among the women and second by men, hanging is third in frequency for men and fourth for women, drowning is second in order by women and fifth among men, cutting is fourth for men and seventh for women, gas is the fifth method used by women and the sixth in frequency by men, jumping is the sixth method used by women and the seventh by men. Three per cent. of all are by miscellaneous methods not above named.

By examining the causes of insanity as tabulated in the State Hospitals of Iowa, we find that heredity is the first one among women, but alcohol is the first one among men. Senility is third in order for both sexes. Next comes epilepsy, and the fifth, sixth and seventh causes of insanity (more frequent in men than in women), are injuries to the head, syphilis and masturbation. No doubt many persons are consigned to hospitals for the insane for treatment, because they either exhibit a suicidal tendency at home, or else it is feared that suicide is likely to occur.

Melancholia is the form of insanity in which by far the largest number of patients show a disposition to take their own lives. Next in order, perhaps, are cases of senile dementia, next cases of dementia praecox, next cases of paretic dementia, and last cases of alcoholic insanity. No doubt some persons, in the hospitals for the insane, and some persons outside of these institutions, end their own lives accidentally rather than purposely on account of stupidity, if insane, and on account of being under the influence of alcoholic liquor, or of some other toxic agent, if sane. We know that suicide seldom occurs in hospitals for the insane, for the reason that the calamity is

guarded against both by the absence of opportunities to commit suicide and by constant vigilance on the part of nurses; furthermore the suicidal propensity when active is much relieved by suitable medicine.

The subject of insanity, like other diseases, is to-day so well understood by the common people that it is improbable that a person who has committed suicide was insane, if previous to the act he was not regarded as of unsound mind by his associates, nor by his attending physician. Furthermore, if the motives which lead up to the act of self-destruction are reasonable, then they would go to show that the act was not committed by an insane person. If insanity is set up as a defense for a man who has committed homicide, and it is shown by the prosecution that the act was premeditated, deliberately planned and executed on account of a suitable and of an adequate motive, and if it cannot be shown that the criminal exhibited insane delusions beforehand or that he was evidently unable to control himself, then it would be very difficult to secure a verdict of irresponsibility. Therefore, it is unscientific and unjust to maintain that a man who commits suicide is certainly insane, any more than to maintain that the man who commits homicide is certainly insane. The man who murders himself may have a good reason for doing so.

I have already declared that suicide occurs in persons who are neither sane nor insane. I believe that a large proportion of the cases of self-destruction are in a condition of mind and body which is called morbid. In this category is embraced the cases of voluntary death in which the brain is not diseased and in which the mind is not deranged, yet, on the other hand, the physical condition is impaired and the mind is somewhat weak. To help explain this morbid condition, I will quote from a paper written by Dr. Beard, of New York, in 1877:

"There is a large family of functional nervous disorders that are increasingly frequent among the indoor classes of civilized countries, and that are especially frequent in the northern and eastern parts of the United States, but of which our standard works of medicine and our lecture-rooms give little or no information. This family of diseases—or of symptoms, if we prefer to call them such—include nervous exhaustion, cerebral irri-

tation, spinal irritation, constitutional neuralgia, sick headache, nervous dyspepsia, physical hysteria (as distinguished from psychical or mental hysteria), hay fever, inebriety and pathophobia, or morbid fear, in its different varieties.

"The sufferers from these maladies are counted in this country by thousands and hundreds of thousands; they are found in nearly every brain-working household. They are comparatively recent maladies, and there has been scarcely time to exhaustively observe and unify their symptoms. All these diseases are symptoms of impoverishment of the nerve-force, and are the results of the drafts made on the vital energies by the increase of work and worry, under the stimulus of the telegraph and railway and the periodical press. These disorders are transmissible, often times taking the place of each other.

"Although these difficulties are not directly fatal, yet the amount of suffering that they cause is enormous. These diseases I bring into one family, because they have a common pathology, a common prognosis, a common history, and a common treatment. They all occur under similar conditions and in similar temperaments. They are all diseases of modern civilization, and mainly of the nineteenth century, and of the United States. The general pathology of all these affections is undoubtably malnutrition. These affections have a common prognosis in these respects, namely, that they do not necessarily shorten life, that they keep off other and more serious and fatal diseases, that they run into each other, and are all transmissible.

"This family of maladies has in general a common therapeutics; all are to be treated on substantially the same general principles—the wise use of tonics, sedatives, and stimulants. In the hygiene of this class of cases the great factors are rest, simple nutritious food, and mental diversion. These diseases are usually amenable more or less, and sometimes very decidedly, to mental therapeutics—to the influence of the emotions of hope and special definite and limited expectation. The prognosis in any case is closely interwoven with the psychology of the patient. The man of feeble resolution, moderate intellect, and who sees only the dark things in life, will

remain an invalid where the man of grit and courage and hope will rapidly recover."

Concerning the philosophy of hay fever, Dr. Beard says: "For the past half century and more, physicians, and scientists, and sufferers have been looking for an *objective* cause of this disorder. They have studied hay, and grass, and flowers, and fruit, and the pollen of ragweed and of corn, sunlight, and dust of every form, and when any one of these substances has been found to excite the symptoms in any single case, straightway the problem has been believed to be solved. Consistently with this line of reasoning and the habit of looking at one side rather than all sides of a complex subject, observers in this country have proved that ragweed and the pollen of corn excite the paroxysms, and term the disease 'ragweed fever.' It is also sometimes called autumnal catarrh.

"All of these observers are right and all are wrong. In reality hay fever, whenever and wherever occurring, is a *subjective* disease; it is from within, and not from without, and all these excitants, whose name is infinity, are but what friction is to a match. The tendency to the disease is a nervous one, and is innate; no disease is more hereditary than this. Carrying out the illustration of lighting a match, we may say that the tendency to hay fever may remain latent for a long lifetime, until, under the irritation of some excitant, it suddenly blazes forth. None of these excitants can produce hay fever unless they find the nervous system prepared for them."

Besides neurasthenia and hay fever and the phobias, already named by Dr. Beard, we frequently meet with persons whose minds are dominated by and made unreasonable with the fear of germs, or the fear of contamination, or the fear of loss of health, or the fear of the loss of the mental faculties.

La grippe is a constitutional disease in which a psycho-pathic factor is often present. This disease has been quite prevalent in this country during the last fifteen years, and in many instances is accompanied by, or followed by, extreme nervous debility. The discouragement and misery incident to la grippe are undoubtedly the cause of many cases of suicide in the sane and in morbid persons. La grippe may produce melancholia,

or some other form of insanity, in persons who are predisposed to mental derangement, and such cases are also liable to commit suicide.

Dr. Dana in introducing the subject of psychiatry expresses his convictions as follows:

"Mental disorders are divided into two great groups: the major psychoses or insanities, and the minor psychoses, or psycho-neuroses. The major psychoses include all those disorders which are commonly and technically regarded as insanities; those in which the disorder of the mind is such that the patient lacks responsibility and capacity to care for himself. The minor psychoses include all those disorders of the mind which are not insanities, in the strict meaning of the term, and in which the patient practically is still a responsible person. These neuro-psychoses include a large part of what has been known as neurasthenia, hysteria, and the majority of a group of disorders known as neurasthenic insanities or phrenasthenia, also many mild forms of melancholia, dementia, and abortive types of the major psychoses.

"The distinction between the major and minor psychoses is not an absolute one, and one type may be grafted upon another. Nevertheless it is of practical importance to establish the general distinction, and especially for patients to understand that a person may be in a morbid mental condition and yet not be insane, nor liable to the development of any insanity."

There certainly are various morbid conditions of the nervous system and of the mind which are prevalent at the present time in this country, which, if recognized and appreciated, will enable us to understand much more satisfactorily the nature and causes of crime of various kinds, also what is the underlying and predisposing constitutional tendency in a large proportion of the cases of suicide. This condition of the body which we call morbid nervousness is a most potent factor in suicide, so that the motives for suicide which are often assigned at the time of the rash act are trivial in character and altogether inadequate. Heredity is the underlying and the predisposing cause of at least one-third of the cases of insanity. In a direct or in an indirect manner numerous cases of insanity may be thus accounted for, but heredity is not especially potent

in suicide. In determining the factor of heredity, we must not be content with ascertaining the existence of psychoses in the ancestors only, but must also inquire into the physical and mental condition of the various members of the family of the present generation, searching for hereditary equivalents, such as epilepsy, chorea, hysteria, neurasthenia, somnambulism, migraine, organic diseases of the central nervous system, criminal tendencies, eccentricities in character, drunkenness—for these equivalents are interchangeable from one generation to another, and are simply evidences of instability of the nervous system. It is the unstable nervous organism that is inherited, not a particular neurosis or psychosis, and it must be our aim in the investigation of the progenitors to discover the evidence of this.

In the psychoses incident to suicide, the sins of transgressions against natural and organic laws on the part of forefathers occupy a place of primary importance as provocative causes. Although the statistics available at the present time are not sufficiently analytical and accurate so that they can be relied upon to furnish any exact data as to the frequency of psychosis and allied affections of the offspring of alcoholic parents, it is a matter of every day observation that the number of cases of nervous instability in children having an intemperate father is proportionally much greater than in families where neither parent had the alcoholic habit.

It is undoubtedly a fact that insanity and suicide prevail in this country more and more. Toxic conditions of the nervous system produced by alcohol and other drugs, by syphilis and other septic influences, by over-stimulation of the mind, by lack of outdoor exercise, and by insufficient muscular development cause suicide in the sane, in the insane and in the morbid. Higher education, a genteel and an artificial mode of living, increased physical sensitiveness and mental sentimentality. Dainty food, good and well-fitting clothing, comfortable quarters to live in, agreeable companions, exhilarating amusements contribute to make many persons in modern society susceptible to untoward conditions and tend to create a general sentiment that life is not worth living unless one's natural and artificial wants are well supplied.

From the reading which I have done concerning the subject of this paper, and from my extensive observation in connection with the treatment of the insane, and from my knowledge of the conditions which produce suicide in society at large, I have reached the arbitrary conclusion that one-third of all persons who commit suicide in this country at the present time are insane, that about one-third of all the persons who commit suicide are perfectly sane, and that the remaining third of the persons who commit suicide occupy the territory between sanity and insanity, and which, for want of a better term, we must say are persons in a morbid frame of mind. By some physicians, some of these morbid cases may seem to be perfectly sane, by other physicians, and possibly at other times, the decision may be reached that these persons possess unsound minds, but there certainly is a large number of persons embraced in this class who can safely be said to be neither sane nor insane.

I will end this paper with a few observations concerning the prevention of suicide and of insanity. Hope is a mental condition which encourages one to wish to live and to undertake to achieve all that he reasonably can for himself and for loved ones. A Christian education extols the altruistic spirit. Surely the chief characteristic of the Savior of mankind was that of self-sacrifice, of seeking the welfare of others rather than of self. By persistent efforts to cultivate and to cherish an optimistic spirit, we can counteract the morbid tendency, in times of sickness and of discouragement, to commit suicide.

J. H. Balfour Browne, in his *Medical Jurisprudence of Insanity*, says: "It seems to us that religion should be looked upon, not as a cause conducive to disease, but as one of those causes which has a most sanitary effect; not as a series of circumstances tending to mental degeneracy and insanity, but as a series of circumstances tending to mental improvement and health."

A reasonable belief in the doctrines of the scriptures and a uniform endeavor to live in accordance with the precepts of the Savior of mankind tend to preserve rather than destroy the mind. By keeping the ten commandments we escape most of the vices and embarrassments of life, and with the promises

of the Good Book we are comforted and strengthened in its unavoidable tribulations. In these days of intense business activity, should we not especially heed the injunctions of the decalogue to "Remember the Sabbath day, to keep it holy," and "Thou shalt not covet thy neighbor's house, thou shalt not covet thy neighbor's wife, nor his man servant, nor his maid servant, nor his ox, nor his ass, nor anything that is thy neighbor's"?

So also as a preventive of suicide, not only in the sane and in the morbid who commit this rash act, but in some of the insane as well, I am of the opinion that a belief in a heavenly Father, in a forgiving Savior, for the penitent, and in a future reward for the righteous, causes its possessor to develop fortitude and a willingness to wait patiently for the Giver of life to end his career on earth in a natural manner.

A FEW REMARKS ABOUT OBSERVATION WARDS AND HOSPITALS.

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In the last few years so much has been said and written about psychopathic and observation hospitals that I feel that an apology is due for presenting on this subject a paper which contains so little that is new or original. The attempt some three or four years ago to induce the Boston City Hospital, of which I was at that time a subordinate officer, to receive into its wards cases of doubtful insanity and of delirium tremens brought the matter rather forcibly to my attention. Dr. Baldwin's paper before this society in 1901 on the subject of the proper provision for such cases was inspired by the same movement, of which he was an active promoter. Most communities of any considerable size have to face this problem. In this country a few cities, such as New York, Brooklyn, Philadelphia, Pittsburg, Albany, and perhaps some others have made special arrangements to solve it. Three of these, New York, Philadelphia and Albany, I visited. It occurred to me that a few observations on the principal features in the actual working-out of the problem might be of interest to others as well as myself.

The class to be provided for is much larger than the title of Dr. Baldwin's paper indicates. The increasing differentiation or specialization of organized relief for various kinds of dependents leaves still a miscellaneous residuum of cases not yet adequately provided for in most communities. These residuals, as I shall call them for the sake of brevity, include not only the cases of doubtful insanity and of delirium tremens referred to by Dr. Baldwin, but also such conditions as sudden

outbreaks of violence or excitement, suddenly developing puerperal insanity, epileptic or alcoholic or other convulsions or seizures, attempted suicides, persons found dazed or irresponsible in the streets, and persons so deeply intoxicated as to need medical observation. In this class should also be included those cases of undoubted insanity which are waiting for the necessary forms of commitment to be made out, a process requiring from a few hours to a few days in some communities. Most of these cases, except the last class, require more or less prolonged observation before they can be sent to the appropriate place of relief or care. They represent emergencies of greater or less urgency. In New York nearly 76 per cent of the residuals are found to be insane, a little over 14 per cent are not insane, and 10 per cent are cases of delirium tremens. In Albany over 61 per cent are acutely delirious or insane, 12 per cent are not insane, and over 26 per cent are cases of intoxication or delirium tremens. The data for Philadelphia were not available at the time of my visit. In Boston, of the cases falling into this category over 64 per cent are insane or epileptic, nearly 15 per cent are not insane, and over 20 per cent are cases of delirium tremens.

It is obvious that all these cases need medical observation. Most of them need general or insane hospital care, and many need it at once, without the delay necessitated by formal commitment. The protection of the community or of the friends of the patient occasionally requires the instant restraint of a patient. In the interest of the 12 to 15 per cent of the not insane (and perhaps of the 10 to 20 per cent of the delirium tremens cases) this restraint should be possible without certification of insanity or the disgrace of arrest by the police. These conditions cannot be well secured in the police stations or jails, nor yet in workhouses or almshouses, where such cases are sometimes sent. Whether they can be found better in general hospitals or hospitals for the insane will appear from a consideration of what is now being done for the residuals in this country and abroad.

Under the reform administration in New York the new management of Bellevue Hospital reorganized the working of the Insane Pavilion. The building, a separate pavilion, is

unchanged at present. It contains two wards, one for men and one for women. Each consists of a long, straight, wide hall which is also a day room, with single rooms for patients on either side, and bath, toilet, dining and serving-rooms. There is a dormitory room containing 5 beds for the sickest bed-patients. There is no way of separating quiet and well-oriented patients from the noisy and disturbing ones except by secluding the latter in their rooms. Each room has a sliding door with a peep-hole, the windows are guarded, the walls smooth and with hard finish. The wards are kept locked. There is no airing court for out-of-door exercise. Patients were formerly under the care of the visiting and house staff, whose invariable order was "sedatives and restraint s. o. s." Under the new regime there are three resident salaried physicians, all of whom have been assistant physicians in hospitals for the insane, and four consulting alienists and neurologists; the medical and surgical visiting staff may also be called in consultation. Since this change was made about 85 per cent of the "sedative and restraint s. o. s." orders have been found unnecessary. The men's ward is in the care of a woman supervisor who has had long insane hospital experience, and the orderlies are assigned to duty from the state insane hospitals for specified terms. The women's ward is in care of a head nurse and pupil nurses from the Bellevue Hospital Training School for Nurses—a concession to the training school. Patients are brought as emergencies by the police or by friends who claim that they are insane; or they are committed for 5 days on a charge of insanity by a magistrate upon application of friends; or committed by the superintendent of Out-Door Poor for 5 days for observation; or they may be transferred from the general wards of the hospitals. All intoxicated persons and cases of incipient delirium tremens applying are sent to the alcoholic ward of the hospital and not admitted at all to the Insane Pavilion—only well marked cases of delirium tremens are admitted, which accounts for the low relative percentage of such cases in New York as compared with the other cities. Patients stay very rarely as long as ten days, and only occasionally as long as a week; five days is the usual outside limit. If found on sufficient observation to be

insane, they are committed to hospitals for the insane on certificate of two of the resident physicians; or they are discharged, or given in charge of their friends, or transferred on account of medical or surgical ailments to the appropriate wards in the general hospital. Instruction to students is contemplated, but not yet begun.

The cases passing through this pavilion are numbered by thousands. Their stay is brief—three or four days. The pavilion is a mere distributing station from which the patients are sent to the appropriate place of relief as soon as that can be determined. During the time necessary for this determination they have good care under the direction of specialists in the kind of disease that afflicts the great majority of them. Among the plans for the new Bellevue it is contemplated to so change the construction of the pavilion as to allow the grouping of patients, in order that the quiet and inoffensive may not see the turbulent cases. If authority to hold the patient for observation against his will for five days without legal process were conferred on the department, thus making unnecessary the magistrate's commitment on a charge of insanity—a prejudgment that is not always confirmed—some injustice to patients might be avoided. For purposes of study and of clinical instruction it would be advisable that patients remain a longer time under observation—say not to exceed two months. This however would necessitate a considerable enlargement of the accommodations, and for economic and administrative reasons might not be feasible.

At Blockley Hospital in Philadelphia the municipal almshouse and the general and insane hospitals are grouped together under one general management. There is no separate pavilion for the residuals, but four wards, two for men and two for women, in the building of the general hospital department are used for reception or detention wards. One of each is for alcoholic and delirium tremens cases, the other for the residual class and all cases committed to the insane department. The building is old, not originally intended for this use, and in many respects not now well adapted to the needs of this class. They are dormitory wards, without separate rooms for individual patients. They are kept locked, and have guarded

windows. These wards are under the medical supervision of the salaried resident physician in charge of the insane hospital department. There are two regularly appointed visiting alienists, whose function is indicated below, and the medical and surgical staff can be called in consultation. The nurses are those of the general hospital. The patients are brought by friends or by the police as emergencies, or on certificate of insanity signed by two physicians not connected with the hospital. After admission those not already committed as insane are seen by the two visiting alienists and if insane are by them certified as such. Those patients who are likely to require hospital residence for a month or more are transferred to the insane hospital department. Others are kept in the detention ward for one, two or three weeks and discharged from there or sent to appropriate wards of the general hospital. At the time of my visit data were not available concerning the number or kind of cases passing through the detention ward. Except in regard to the structural deficiencies, which prevent a segregation of the quiet from the disturbed observation cases, the general plan of care works satisfactorily.

The semi-public Albany Hospital has a pavilion a little removed from those containing the wards for the general medical and surgical cases, but connected by corridors with the main group of buildings. This Pavilion F. has now been in operation for two years. It contains two locked wards of 17 beds each, all but four of which are in single rooms, the four being in a small dormitory room. There are three sitting rooms, and the whole ward is capable of being subdivided into smaller sections which allow segregation into small groups of three or four patients. Some rooms have guarded windows, plain smooth interior finish and sound-proof walls. Quiet and well-oriented patients need not see noisy and turbulent ones. There is no closed court-yard for out-of-door exercise. The medical care of patients is under the close supervision of a visiting physician who has had several years' experience as assistant in hospitals for the insane. He visits the pavilion twice daily. A medical interne of the general hospital visits during his absence in case of need, and often with him. The medical and surgical staff of the hospital can be called in

consultation. The nursing service is in charge of a supervisor who was trained in both insane hospital and general hospital training schools; the nurses are assigned from the hospital training school to service for a specified time in Pavilion F. There is but one orderly or male nurse in the pavilion. Almost no restraint or sedatives are used. Formerly the delirious patients in the general wards were given large doses of hyoscyne and other sedatives. Delirious patients from the general wards and any suitable patients, except such as may be brought by force or fraud, are admitted without commitment or other formality. This exception occasionally makes the pavilion fail to meet some of the most urgent needs of patients or their friends. No patient is kept who demands discharge except such as have been committed to a hospital for the insane and are waiting transfer. Patients are kept from a day or two to six months. Clinical instruction is given to students of the Albany Medical College.

This method of taking care of the residuals works admirably except in the case of such turbulent cases as require immediate hospital care but who are sufficiently oriented as to know their surroundings and refuse to go to or remain in the pavilion. The governors of the hospitals have refused to accept the authority to admit or hold a patient, even for a brief limited period of time, against his will, lest the hospital become liable at some time to suit for damages by some disgruntled patient, and to avoid the similarity to a hospital for the insane which such authority would imply. An appreciable number of patients have been declined for this reason. Only 831 patients have been admitted to Pavilion F, though Troy, Schenectady and other neighboring cities and towns have contributed as well as Albany itself. If the numbers should increase largely the system of having a visiting physician would probably prove inadequate and a salaried resident physician with insane hospital experience would become necessary. Since patients are kept for treatment it would be advantageous to have an out-door yard for the use of patients who might otherwise escape.

In Germany many municipalities have established what they call psychopathic wards, pavilions or hospitals, easily acces-

sible from the more densely populated parts, admission to which is obtained with a minimum of formality. They are all constructed and organized as far as possible on the lines of a small hospital for all classes of the insane. Dr. Clark's concise and instructive paper before this society last year mentioned most of those in Germany and described especially the newest one at Kiel. We in America cannot afford to overlook this German movement when our municipalities are contemplating the proper care of their residuals.

It is clear from the foregoing descriptions that the nearer the conditions approach those of the insane hospitals the more satisfactorily are the residuals cared for, and the better are their needs and those of their friends and the community supplied. If this be so, why are not the already established hospitals for the insane adequate and satisfactory?

The reasons are several. In the first place, many cases are emergencies occurring in the centres of population, while hospitals for the insane are remote, often requiring a journey of an hour or more by rail and a mile or more by carriage, with facilities ill adapted to the needs of an exhausted or excited patient. Then, admission is possible only on certificate of insanity or, in some states, also on the voluntary written request of the patient. Again, the time required to secure the legal form of commitment varies in different states from a few hours to a few days. Further, a considerable percentage of residuals (12 to 14 per cent.) prove to be not insane, yet many of them need observation to determine this fact who would not voluntarily commit themselves. It would therefore be necessary to put upon them the "stigma of insanity" as many regard it; it will be many years before public sentiment becomes so enlightened that it will not be so looked upon. And lastly, the average person shrinks from the words asylum, insane, lunatic, which enter into the names of almost all the hospitals for the insane. The sentiment may be unreasonable, but the fact remains that it is at present a potent factor in delaying the admission of patients to such hospitals, sometimes to the great detriment of the patient.

It may be asked why, especially in a large community, the wards of a general hospital are not adequate to meet the

needs of this class. The reasons are many. The chief ones are briefly as follows:

1. General hospitals have not the authority to hold persons against their wills.

2. The wards of general hospitals are open, not locked, and a patient may easily escape. Also the nurses' attention and time are taken up by manual ministrations to the sick, and they cannot watch suicidal patients or those liable to escape.

3. The nursing force is not mobile enough to meet such emergencies as sometimes arise, requiring the presence of several nurses to properly handle a violently disturbed patient, without neglecting other patients.

4. Noisy patients disturb the other sick patients, who need quiet. Sedatives are therefore necessary, and often these are bad treatment.

5. Violent or excitable patients would have to be kept in bed by means of restraint; this is often bad treatment.

6. Unless the residuums in the general hospital were under the care of a psychiatrist, their treatment would be directed by the general staff, to whom epilepsy, hysteria, delirium and insanity almost invariably mean large doses of sedatives and mechanical restraint—this is the experience at Bellevue and at Albany and accords with my own observations in the Boston City Hospital. It is often very bad treatment.

7. The general visiting staff has not the time, nor usually the interest, to make sufficiently detailed and accurate observations for the diagnosis and treatment of mental cases. The house officers or internes are too inexperienced.

8. It is always possible to meet any emergency somehow, and the fact that emergencies of the kind under consideration have been met successfully in the wards of a general hospital is not a sufficient reason for thinking that they are the best or even are in general adequate to the needs of these cases.

The essential conditions to be met therefore by any community that is to look after its residuums in the best way our experience has thus far pointed out are as follows:

1. Locked wards having some guarded windows and separate rooms for patients, and capable of having portions shut off so as to segregate different classes of patients.

2. These wards should be in, or very easily accessible from, the centre of population.

3. The medical care should be under the direction of a physician, preferably resident, especially in large communities, who has had experience in the care of the insane.

4. The nursing service should consist of persons of whom at least those holding the more responsible positions should have had experience in the care of the insane.

5. The requirements for admission should be as few and as little formal as possible—the patient's obvious or stated need should be the only absolute requirement. No certificate should be required.

6. Authority to hold a patient against his will without certificate for a specified time, as five days, should rest with the governing person or body.

In addition to these essentials it would be for the benefit of patients to have quick and easy facilities for consultation with physicians, surgeons and specialists in the different branches of medicine and surgery. This can be very easily arranged if a ward or pavilion in connection with a general hospital is used. Fractures and other surgical injuries are not uncommon as the result of suicidal or violent outbreaks; and more or less obscure or severe somatic conditions, some of them lying within the fields of the various specialties, are also frequent. It is also almost a necessity to have good facilities for at least such microscopical, bacteriological and chemical examinations as are commonly made in the ordinary examination of general hospital patients; and this need becomes absolute if patients are to be kept any length of time for treatment, as at Albany, instead of being sent elsewhere after a short period of observation, as in New York. Larger laboratory facilities are advisable if the institution is large enough to be independent, as at Giessen, Kiel and elsewhere in Germany, and more especially if first-class clinical instruction is to be given to students. If such clinics are to be held, or if patients are to be kept under treatment, they should be able to remain for different periods of time, but not to exceed four to six months. If patients are to be kept for treatment, therapeutic means of various kinds must be supplied.

Each community that intends to make suitable provision for its residuals should decide in what form it shall supply the essentials. The first thing to determine is whether the institution is to be a mere distributing centre which only gives proper care until the patient can be sent to the appropriate place of relief, or a place for prolonged observation and treatment as well. Much larger accommodations are required for the latter. In New York, considerably more than two thousand patients pass through 60 beds annually, whereas 174 patients passed through 33 beds in a year at Albany. It should be said, however, that more patients could have been accommodated at Albany. The German idea is to have places for treatment rather than mere distributing points. Certainly if they are to be used for study or instruction, and also if they are to help prevent the congestion of the hospitals for the insane, they should have facilities for prolonged observation and treatment.

The next point to decide will be as to whether a ward or a pavilion connected with a general hospital, or a separate institution such as those at Giessen and Kiel is most desirable. This will depend largely on the size of the community. Many American cities of 15,000 to 20,000 inhabitants, and even some that are smaller, already have general hospitals. The addition of a small ward or pavilion to such a hospital might not be beyond the means of the community. Last year Dr. Clark advocated such addition in cities of that size. The difficulty would be to find an alienist to assume the charge of it. Psychiatry is so poorly taught in the medical schools of this country that there are few alienists outside of hospitals for the insane. I know a city of over 65,000 inhabitants among whose physicians there are none who have any special knowledge of insanity. This is a condition, however, that is being remedied and in the not far distant future it will be less difficult to supply this need. Dr. Sommer, director of the clinic at Giessen, advises that every city of 50,000 inhabitants should have an independent hospital. This is possible in Germany where psychiatry is so much better taught. Here the independent institution might well be founded only in those larger cities that have good medical schools, the pavilion plan serving even large communities well. That at Albany, for example, which draws

its patients from a widely scattered population of probably 200,000, is entirely adequate for its purpose. It must be borne in mind, however, that supplying the need will cultivate a demand, and in a few years after the establishment of the ward, pavilion or hospital there will probably be a larger number of patients in proportion to the population than at first.

Finally, before closing, I wish to speak of one possible abuse of the psychiatric pavilion or hospital, which raises a sociological question. A pretty large percentage of the beneficiaries of these clinics are persons who have become for the time being social parasites through self-indulgence. I refer to the cases of alcoholism and delirium tremens. Over 26½ per cent of the patients taken care of in Pavilion F are of that class. During their incapacity they need skilled care and nursing, and they get it. Their pathway through the mazes of delirium is rendered as easy and pleasant as their condition will allow. Sometimes it is so pleasant that delirium tremens has comparatively little terror for them. They lose one of the strong incentives to self-restraint. If drunkenness is a punishable offense, why should not delirium tremens, which makes the person more dangerous to, and more dependent on, his friends or the community, be punishable in a greater degree? Why should not the patient, after recovering from his delirium, be fined or imprisoned for having had it? Unless in some way it is made disagreeable or disgraceful to acquire delirium tremens, such excellent care as these wards or hospitals can and will supply will only serve as a premium on self-indulgence to the point of personal incapacity and dependence on the public.

RECONCILIATION OF THE DISPARITY BETWEEN HOSPITAL AND ASYLUM TRAINED NURSES.

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The word "asylum" in the caption is used merely to designate the distinction between a hospital for the treatment of general diseases and a hospital for the care of mental diseases. At the present time any affection of the mind is considered a disease and any institution that undertakes the care and study of mental disease in all its manifold relations, psychical, physiological and pathological, is a hospital.

A paper dealing with the training of nurses cannot claim novelty; at most it must be a representation of a subject always of interest to the practical psychiatrist. The chief secret of successful care of the insane lies in the securing of proper nurses. The importance of this desideratum in any hospital is the writer's apology for saying anything on a subject so thoroughly exploited.

No one will interpose objections to the training of nurses in institutions for the insane. No alienist who has had experience would ever revert to the old method of having untrained attendants upon the insane any more than the general hospital superintendent would wish to manage his hospital with the old-fashioned nurse who was physician's helper, nurse if she possessed the temperamental qualifications, and ward maid combined. Estimable as were many of these women, faithful and devoted to their work as they may have been, still the modern trained nurse in the general hospital is so vastly superior by reason of her intelligence as to compel conviction.

In hospitals for the insane, while the same sort of conviction exists, still there is an admitted difference, a sort of tacit

feeling that the two kinds of nurses do not stand on quite the same solid foundation. The public as well as the nurses themselves often have the feeling that the asylum nurse does not possess quite the same qualifications as her sister nurse trained in the general hospital. How are we to make the training and experiences of the two classes of nurses more nearly equivalent? Are we to try to do it all? Or is it better to admit that both classes should remain specialized, each confining themselves to their own individual work?

Two factors underlie the establishment of training schools for nurses:

First, the better care of the patient, and secondly the utilitarian purpose on the part of the hospital to secure efficient nursing at a moderate price. In the general hospital the nurse serves her course of two or three years and then is expected to leave and enter upon the practice of her profession outside the hospital, unless perchance she may be one of the limited number selected for a special position of trust in it. In the hospital for the insane there is a little uncertainty as to the future of the graduate nurse owing to differences in methods of training and in conception of the purpose and scope of the asylum training school by the managers of these institutions.

In the early days of asylum training schools many thought that instruction should be limited to the nursing of mental disease, and that strict specialization should be the dominant principal. By this means it was hoped that greater permanency might be secured among asylum nurses. When, after a few years, it was found that these trained nurses did not average as long an institution residence as did many of their untrained predecessors, criticism was not infrequently heard that the whole scheme of asylum training schools was a failure. These unbelievers said that the old attendant who was faithful and who remained in the institution many years was more desirable than the trained nurse who as soon as her course was completed became anxious to leave the service and try her hand in new work outside the institution. In their minds training had only served to make the nurse restless and more ambitious. The hospital, after two years hard work, lost its pupil just at the very time when it was hoped that

she might become most efficient. This criticism, however, is specious and not based on the right principle. The easiest way is not always the most desirable. The results that are secured without hard work and with little friction are not always the most satisfactory or enduring. It must be taken for granted that young women with the brightest minds and the greatest aptitude for mental nursing will naturally seek new fields for their ambition after their training is finished. A few may remain in positions of trust in the service but it must be expected that the majority will, by very reason of the mental impetus initiated by their training, seek larger fields in which to test their capacities. But this frequent changing of nurses, aside from the additional work imposed upon the hospital staff, is not to my mind particularly objectionable. The infusion of new blood into the service, the successes of those who have preceded, the ever constant stimulus of good example tend to develop an esprit de corps which more than compensates for the shortness of the service.

Admitting then the fact that changes must occur yearly as classes graduate, that training in the hospital for the insane does not mean any greater permanency of individual service than corresponding training in the general hospital, the questions arise, Shall we specialize our instruction in the hospital for the insane? Shall we maintain the separation between the two classes of nurses? Or shall we endeavor to draw them nearer together making the standard and experiences of the one more nearly equivalent to the other so that a trained nurse whether graduated from general hospital or asylum training school will stand on similar ground not only in her own estimation, but in that of the community as well?

It must be admitted that in securing nurses for training, the hospital for the insane is handicapped. Few young women in seeking a nurse's education would on first thought select an asylum in preference to a general hospital. First the character of the disease does not appeal to the ordinary individual, and secondly the demand for mental nurses in the general community is not sufficiently great to secure constant employment. In order that young women of intelligence and in sufficient number may be secured it is necessary for the asylum to pro-

vide something more than special instruction in mental nursing. The institution must enlarge its training so that the graduate nurse will feel competent to undertake the profession of general nursing. Is this broader instruction to be attained by affiliation with some general hospital, the nurses exchanging places with one another so that the experiences and instruction of both will be equivalent? If this method is not practicable how can the disparity between the two classes of nurses be reconciled?

If an exact interchange of nurses could be made between some general hospital and an asylum, much might be said in favor of such affiliation. Unfortunately this interchange is not very practicable. The majority of nurses do not feel that they can afford the time necessary for courses of instruction in two hospitals. Very rarely are general hospitals and asylums located in such proximity and with such close relationship as to render an interchange of nurses feasible. Finally, experience has shown that, while asylum graduate nurses are frequently willing to enter general hospitals and do excellent work in these institutions, rarely does it occur that graduates from general hospital training schools are desirous of entering asylums. Those who would make this change for purely academic reasons are very few in number.

In a way, too, the training and practice in a general hospital unfits a nurse for the special work in the hospital for the insane. The nurse in a general hospital, accustomed to rely on the patient's mental integrity and personal responsibility, merely follows the routine directions prescribed by the visiting physician and the rules of the hospital. The nurse in an asylum is constantly being taught that the patient's judgment and responsibility are impaired and that her own judgment must ever be tactfully substituted for that of the patient. Tact and self-control become cardinal virtues in the asylum nurse. The almost constant exercise of judgment, tact and self-control develop a patient forbearance that is of inestimable value in the care of the sick. The graduate nurse from the general hospital finds all the requirements so changed upon entering the asylum that adjustment to the new conditions becomes extremely difficult. Most general hospital

nurses, undertaking special training in an asylum, become impatient, see nothing to do and grow weary under the constant demands made upon their nervous energy.

Close affiliation with a general hospital being impracticable, what course is desirable for the asylum training school? Personally the writer believes that the best results can be attained by the adoption of a comprehensive course of training that will fit graduates for general as well as special nursing outside the hospital. It may as well be admitted that graduates will not remain long in the asylum. Nearly all will desire to practice their profession outside the institution and ought not to be discouraged in their ambition. Of these a few will from time to time be glad to return as head nurses and become all the more valuable by reason of their larger experience in private nursing. The moral effect upon the community of these asylum graduate nurses is excellent. Their services do much to lessen the old popular superstitions concerning insanity, and remove the prejudices against asylums. The public through their presence come to realize that insanity is a disease, that the asylum is a hospital, and that nurses are as essential there as in the general hospital or for the care of any other illness.

That the course of instruction in the asylum training school may be made the equivalent of that of the general hospital, every facility for clinical drill must be utilized. This is to be accomplished in various ways. One of the most important agencies for this purpose is the hospital building not only for the acute psychoses, but for the hospital nursing of those patients who are sick in bed. Too often does it happen that the sick in bed in asylums are scattered throughout the entire institution. Such cases, as far as is possible, should be brought together in the hospital building. This building should be constructed on the lines of the general hospital but with sufficient elasticity to admit of some individualization in the treatment of mental conditions. There should be a common ward for those entirely cared for in bed, single rooms for patients requiring isolation, these wards and rooms being provided with every appliance that experience has demonstrated desirable in the nursing of patients in the general hospital.

The "hospital idea" so long insisted on by Dr. Cowles should be the dominating feature of this building. It is most desirable that all new cases, particularly the acute psychoses, should be admitted into the hospital building, receive their first examination there, and the subsequent clinical study so essential in the recent case. The important first impression on the patient is a favorable one. Whatever his own morbid ideas may be the "hospital" rather than the "asylum" impression is the striking feature in his new environment. Of almost equal emphasis is the same impression upon the nurse. The more she becomes imbued with the hospital spirit the more useful will she be to the institution and the better equipped for the general practice of her profession. The hospital building should also be provided with wards for the physically sick and infirm demented patient. No cases require more skillful nursing than these and none better test the capabilities of a good nurse. Many of the Scotch asylums have hospital buildings constructed and managed on the same lines as the general hospital with what seemed to the writer most desirable results.

Furthermore, this hospital building should be at a little distance from the main group though connected by corridor or subway. The impression of detachment will be secured while transfers to and from the main buildings can be made under cover. Connected with the building should be a surgical operating room equipped with every modern appliance. In a large hospital for the insane occur many surgical cases. Without a suitable operating room many cases requiring surgical measures are either treated in a temporizing way, or are sent elsewhere. All such work should be done in the hospital so that the nurses will derive experience in the preparation of the room and patient as well as in the management of dressings and instruments. Modern asepsis should be taught here, and there is no good reason why the nurses should not receive as good drill in this subject as those in a general hospital. The occasion for abdominal surgery not infrequently arises in hospitals for the insane and should always be improved. Specialists are always available outside the institution and can readily be secured for assistance when necessary, provided the

asylum possesses the requisite building and equipment. The surgical operating room should be central to the wards of the hospital building and should be adjacent to a large passenger elevator so that patients from the wards can easily be brought to the room. Every case requiring surgical measures either in the way of operation or dressing should be brought here where absolute asepsis can be taught and practised. Too often these steps are neglected because of lack of suitable place and appliances. With the proper equipment the medical staff are given healthy stimulus and the nurses taught correct technique.

The hospital building should have wards for both sexes conveniently separated by such administrative apartments as are necessary. A most important feature is the management of this entire building, which should be vested in a head nurse of experience, preferably a graduate of the hospital with a subsequent experience in a general hospital or general nursing outside the hospital. This should not be a divided management, partly male and female. The hospital building should be absolutely under the care of the head nurse and her assistants. The nurses should feel that they are in control. Division of responsibility between male and female attendants is not productive of good results but leads rather to friction and irritation.

The care of the male patients and male wards in the hospital building should devolve on women nurses as far as is possible, with such assistance from orderlies as is necessary, the methods being similar to those prevalent in general hospitals. It is the writer's conviction from his own somewhat limited personal experience and from his observations where the experiment has been tried that male insane patients sick with physical or surgical infirmity receive better care from women nurses than from male attendants, that male patients with few exceptions appreciate such care, and that with proper supervision no objectionable unpleasantness to the nurse arises. Finally, rotation of service should prevail in every institution for the insane as in general hospitals. Every nurse should serve on both day and night duty in the hospital building as well as in the wards of the institution. Too long service

in any one ward wearies the active nurse and intensifies the ennui in the unambitious nurse. The nurse who is not willing or is not able to serve in any and every ward is not imbued with the proper spirit and ought not to be entitled to graduation. The reactionary effect upon the nurse of rotation of service is excellent. Especially valuable is the nursing of both male and female patients in the hospital building. Service in these wards should be the goal to which each junior nurse should look forward.

These desultory remarks by no means cover all that might be said upon the subject of a hospital building. They are merely intended to emphasize the necessity for such a department, to demonstrate its relation to the nursing service of the institution. As an educational aid to the nurse, as a most important agent in lessening the disparity between asylum and general hospital trained nurses, I believe the hospital building is a *sine qua non* in any institution for the insane undertaking the training of its nurses.

In addition to the hospital building there are other agencies that increase the efficiency of the asylum trained nurse, the most important of which are drill in the keeping of clinical notes, practical diet kitchen service, dispensary work, the preparation of surgical dressings, the administration of baths and massage, and especially insistence on a high standard not only in the passing of examinations but in efficient work at the bedside and in the management of patients. In these especial agencies every asylum possesses specific means for furnishing a drill and mental discipline equivalent to that of the general hospital. One of the most desirable qualifications of a trained nurse is the power of quick, clear observation, one of her most important requirements is the ability to concisely report what transpires in the sick room. Nowhere in the whole field of medicine is better opportunity afforded for exercise of the powers of observation than in the wards of a hospital for the insane. A patient does not talk, has all sorts of vagaries, refuses food; it remains for the nurse to ascertain what is going on in this patient's mind, and in a few brief clinical notes to state not only what the nurse has done but what the patient's thoughts and conduct have disclosed.

It is needless to say that diet kitchen service can be made just as effective in the asylum as in the general hospital. That this may be done, a well-equipped diet kitchen with adjacent supply room should be provided. A teacher resident in the hospital or periodically engaged from some metropolitan cooking school should give regular courses of instruction in sick room cookery. Each nurse should serve so many weeks in the diet kitchen executing orders for sick diets given by the physician. In this way the diet kitchen is not only of practical value to the nurse but profitable to the hospital.

Dispensary drill can be made equally efficient. Each nurse serves a stated time in the drug room familiarizing herself with weights, measures, pouring of drugs and such compounding as is required of a nurse. Similarly in the preparation of surgical dressings, in the making of the various aseptic solutions, care of instruments, preparation of the operating room and table the asylum nurse should be given such thorough drill in the hospital building that all these duties will become a second nature to her so that she will perform them with the same facility and precision as the soldier executes his manual of arms.

In the administration of the various kinds of baths and massage the asylum offers especial advantages. Hydrotherapeutics and massage are of great value in many cases of mental disease and should form an important feature in the nurses' training. The facilities for these measures should be fully equivalent to those offered in the general hospitals.

The maintenance of a high standard for graduation is especially important. Efficient work in the wards, facility in the management of insane patients should be regarded as essential for graduation as mere intellectual proficiency. Nurses not possessing the requisite tact, judgment and self-control should be eliminated from the service before the senior year is reached. The moral value to the nurse of these qualifications is so great that I believe that any young woman proficient in the care of the insane is quite sure of success in the practice of general nursing. Experience has demonstrated that the majority of asylum nurses after graduation have been commended for the possession of these very virtues that are

the outgrowth of the mental discipline incident to successful care of the insane. There is good reason, therefore, why young women not possessing the mental traits essential to good asylum service should be eliminated. Those that remain prove doubly valuable, doing credit to themselves and the hospital that graduates them.

The hospital for the insane located in or near a large city possesses peculiar advantages over one more remotely situated. It is possible for the asylum near a city of some size to establish relationship with some dispensary, or better still, a district nursing association. Most large and many small cities maintain district nursing associations which not only are a most worthy charity but furnish valuable material for practical nursing. As ordinarily managed these associations undertake nursing in the homes of the poor, furnishing a nurse for a few hours each day in such families as could not afford a nurse the entire time. The service is quite varied, including confinement cases, non-contagious fevers, surgical dressings, many emergency cases and the care of the sick room. Not even a general hospital offers a better drill than a well appointed district nursing service. The personal adaptation of the nurse to varying conditions in the homes of the poor, the management of the patient and the sick room with meagre resources at command is a far better test for the nurse than the well-equipped hospital.

The official connection of the New Hampshire State Hospital with a local district nursing association has proved such a benefit to the training school of the institution that brief mention of the fact seems pertinent. In 1900 a district nursing association was organized in the city of Concord. A graduate nurse from the Waltham Training School was engaged to inaugurate the work. In a few months owing to increased service it became necessary for the organization to engage an assistant nurse. Recognizing the abundance and value of the clinical material available the New Hampshire State Hospital entered into business relations with the association to furnish pupil nurses. At a later period upon the resignation of the head nurse the position was filled by a former graduate of the State Hospital whose training had been supplemented by a

post-graduate course in a New York city general hospital. The district nursing service soon proved such a worthy charity that a second pupil nurse became a necessity. At the present time two senior undergraduate nurses are rendering eight weeks' service in the city under the direction of a former graduate of the hospital. From personal experience I can testify to the excellent variety and character of the work and the admirable discipline and training afforded the nurses. District nursing supplies exactly the kind of experience a nurse needs. It supplements the asylum practice, giving the nurse a practical training in obstetrics, fever and surgical work. This house to house nursing provides the same sort of experience for the nurse that dispensary district practice furnishes the young physician. It is of even greater value than ward nursing in a general hospital because of the ever varying environment and the test imposed upon the personal resources of the nurse. The quality of the service rendered by each nurse is a determining factor in her graduation. A nurse cannot receive her diploma whose district work is not satisfactory. Her work must pass the inspection and approval of, a, the numerous physicians whose cases are treated, b, the Board of Visitors of the association who frequently visit the different houses making personal inspection and receiving comments from the various families and, c, the head nurse who assigns the cases and has immediate control of the instruction and the work. The inspection is, therefore, sufficiently thorough to put each nurse upon her mettle, to insure efficiency and prevent slackness or neglect. The results have been so gratifying that I do not hesitate to recommend district nursing wherever practicable as a most valuable adjunct to the curriculum of the asylum training school. This service is a stimulus to the nurse and is a most potent factor in lessening the disparity between the general hospital and the asylum trained nurse.

Every asylum should have a Nurses' Home entirely detached from the main building. Such provision is in line with what general hospitals are doing for their nurses and tends to elevate the character of the service. The nurses are better prepared for their regular duties by the untrammelled recreation thus afforded them. A separate building suitably furnished

and under the supervision of the head nurse dignifies the service and establishes a distinction between the nursing and the domestic departments. Absolute change is as essential for the special as for the general nurse. Asylums should follow general hospitals in the erection of nurses' homes. They are one of the agencies that lead to the securing of a more intelligent service.

The writer's purpose in presenting a paper on so familiar a topic will be fulfilled if discussion is awakened thereby, or the expression of new experiences is elicited from fellow-workers. Training schools for asylum nurses long ago passed the experimental stage. Greater intelligence in his nursing staff is the earnest desire of every asylum superintendent. The instruction afforded by the training school in so far as it induces young women of ability to apply for ward positions and develops those already in the service is fulfilling a most important mission. If by any means this training can be so broadened through the agencies enumerated as to make the asylum graduate feel that she is as well qualified for the general practice of her profession as the general hospital graduate, then the problem of securing desirable nurses in the hospital for the insane will be materially lessened.

DISCUSSION.

Dr. TOMLINSON: I am glad to be able to say that since 1908 we have been carrying out the scheme recommended in Dr. Bancroft's paper. When we organized our training school it was with the idea that we should eliminate, so far as possible, those conditions which were the result of asylum tradition, and substitute for them, so far as we were able, the conditions of the general hospital. For this reason we eliminated the mental condition of the patient from consideration with relation to his care; so that while we might speak of him as excited, depressed, suspicious, or afraid, we did not speak of him as insane. Our attention and efforts were given to his physical condition, its study, and the alleviation of whatever illness might be present. We were able to supply everything necessary to the training of the general nurse except the obstetric experience; but this difficulty was overcome and the training amplified by allowing our nurses to take care of private cases, under certain restrictions. Some things connected with the training of the nurse are learned better in a hospital for the insane than in a general hospital; particularly the habit of self-control under the most trying circumstances, and the capacity to think and

act for those who cannot think and act for themselves. The training in a general hospital leaves the nurse to a great extent dependent upon the patient, and makes her work, to a considerable extent, mechanical. So much general and special work is done in our hospitals nowadays, and the number of cases under treatment is so large, that the clinical training can be, and is made in our hospital as thorough as in any general hospital. The quality of the material we have to work with is improving every year, and while we in the newer states have not the same class to draw from in recruiting for our school, most of the applicants are grammar school graduates, and some of them have completed their high school course.

We are handicapped by the fact that we do not have a nurses home, but in spite of all these drawbacks four of our graduates are in charge of general hospitals, eighteen of them are doing general nursing in St. Paul and Minneapolis, and a number throughout the state. I am heartily in accord with the idea of Dr. Bancroft that the training in the hospital can be supplemented by experience in district nursing, but public opinion has not been sufficiently enlightened to admit of our carrying out the plan in Minnesota.

DR. HUGHES: This is to my mind a timely, able and comprehensive paper from a competent source of adequate clinical experience. Dr. Bancroft has long been connected with this work and knows the needs thereof. It is timely, because the general hospitals do not often qualify their trained nurses for the emergencies of delirium, epilepsy and transient mental aberrations that so often occur, even in the wards of general hospitals. It often happens that patients, who in the course of general disease develop symptoms of mental aberration, are required to be removed from the institution to a hospital for the insane as such. When nurses are trained as Dr. Bancroft suggests, so thoroughly trained as nurses in a general hospital should be, to this training a knowledge of mental aberration shall be superadded, then there will be perfect nurses, and if they do not remain in institutions, but go outside, it will be so much the better for the nurses, so much the better for the patient and so much the better for the general practitioner especially whose cases may fall into the hands of such a nurse. One of the chief difficulties in caring for these cases outside the wards of an insane hospital is the dearth of this kind of especially trained nurse to meet these emergencies, and psychiatry is as much a branch of the practice of medicine as the more common varieties of therapeutics, and is beginning to be recognized as such. Benjamin Rush himself recognized this way back in the early part of the nineteenth century. If we train these nurses, if we train them in a general way to do the things which nurses in ordinary hospitals do, and in the care of delirium, insanity, etc., they will relieve the physician and also benefit the patients. They will be enabled to take burdens off the now over-taxed insane hospital physician, such burdens as ought to be taken off them. The ordinary asylum nurse would then be more efficient

and the general hospital nurse would be better for all and act a part, as now, of the emergencies of care and treatment.

DR. KILBOURNE: I think we might string this discussion out into the middle of next week. I was much interested in the paper. Superintendents are all proud of their training schools. Living in a town with the greatest surgeons in the world, we have certainly as good an opportunity for surgical training as there is to be found, and our state hospital nurses are certainly better trained than nine-tenths of the people engaged in nursing to-day. Patients in the state hospitals are better cared for than in most of the general hospitals of this country.

DR. BANCROFT: I should like to add a word. Dr. Temdinson spoke of the desirability of a nurses' home. I made allusion to that in my paper, but omitted it on account of the length of the paper. I regard a nurses' home as one of the essential requirements of every hospital for the insane. When general hospitals are doing so much for their women nurses in giving them pleasant homes where they can live apart from their work, I think it is essential in order to secure equally efficient service in hospitals for the insane that every hospital for the insane should have a nurses' home where they can live in comfortable quarters free from the strain and responsibilities of their work.

REVIEW OF A RECENT BLOOD STAIN AND A NEW BLOOD TEST, WITH ILLUSTRATIONS.

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Appreciating the fact that during the past few years there has been increased interest in laboratory investigations in all departments of medical work, I offer no apology for discussing a subject which at first thought may appear somewhat foreign to the question usually presented for this society's consideration.

Today every hospital and asylum has or should have a well-equipped clinical laboratory for the examination of general pathologic conditions frequently found associated with mental or nervous diseases.

One of the most important clinical observations we make is the condition of the blood, which, on account of the more delicate technique required, is often neglected or examined in such a cursory way as to afford little or no valuable information. The examination of the fresh blood is of some value in ascertaining the number of erythrocytes and leucocytes, also the amount of hæmoglobin, and sometimes it shows the presence of blood parasites as filaria, malarial organism, etc.; but, as a rule, the most accurate diagnostic information requires a well-made, well-stained blood film, showing the histologic and pathologic elements so clearly defined that they may be readily recognized. This can be accomplished only by the use of a good differential stain. The one now best adapted for general blood work consists of a combination of methylene blue and eosin which has undergone numerous modifications of preparation during the past decade. The principle on which this stain is made is that originally demonstrated by Ehrlich,

viz.; that it is possible by the combination of aqueous solutions of basic and acid anilin stains to form neutral stains. Thus the methylene blue forms the base and the eosin the acid of this neutral stain. Without going far into the chemistry of the stain it suffices to say that an oxidation product is generated in the methylene blue solution called methylene azure which greatly enhances the value of the stain.

Most of the methods of preparing methylene blue eosin solution have been modifications of the Romanowsky method, but I shall here describe only the Wright stain and some modifications which I have made in the method of preparation.

Wright's stain is made as follows:¹

Make a one-half of 1% aqueous solution of sodium bicarbonate, dissolving thoroughly, then add 1% methylene blue and steam in Arnold sterilizer 1 hour after steam is up.

Make one-tenth of 1% aqueous solution eosin.

Add eosin solution to methylene blue solution until mixture becomes purple with a finely granular precipitate in suspension, about 500 parts of the eosin solution to 100 parts of the methylene blue solution.

Filter off the precipitate and dry without washing.

Make a saturated solution of this precipitate in pure methyl alcohol, which requires about 0.3 gram to 100 c. c.

Filter and add 25% of the original volume of methyl alcohol to prevent precipitation of stain on film. In applying the stain cover the film for one minute with stain; then add to stain distilled water drop by drop until the mixture is translucent at edges and a metallic scum forms on surface; allow this diluted stain to remain two or three minutes. Wash in distilled water until the film becomes pink. Dry with filter paper. The stain gives the following reactions:

Lymphocytes, nuclei stain dark purplish blue, cytoplasm stains robin's egg blue; large mononuclears nuclei stain blue; cytoplasm stains pale blue.

Polymorphonuclear-neutrophiles nuclei stain blue, granules stain reddish lilac; eosinophiles nuclei stain blue, granules stain pink; mast cells nuclei stain blue to purplish, granules stain dark blue or purple; myelocytes nuclei stain dark blue or lilac, granules stain dark or reddish lilac.

Blood plates stain blue or purplish.

Malarial parasites nuclei, chromatin portion stains lilac red to black, cytoplasm stains blue.

Wright recommends the Gruebler brand of stains for preparing the primary solutions, using "Gruebler's methylene blue," "Bx," "Koch," or "Ehrlich's rectified," and "Gruebler's yellowish eosin aqueous." I have also found Merck's medicinal methylene blue and yellowish aq. eosin quite satisfactory.

An essential feature of Wright's method is the heating of the methylene blue solution in the Arnold sterilizer, which rapidly oxidizes or ripens it, generating in it methylene azure.

Different samples of methylene blue and eosin vary somewhat, as will also the amount of methylene azure formed, thus we cannot combine different samples of the primary solution in absolutely definite proportions, but must vary the amounts somewhat, as Wright implies in stating that we use about 500 c. c. of the eosin solution to 100 c. c. of the methylene solution.

I have found it satisfactory to use freshly made primary solutions, ripen the blue solution as Wright describes and in combining the primary solutions test the staining reaction as we approach the required amount; in a sense titrating the stain and controlling the end reaction by the actual application of the stain to freshly made blood films. The test is, make by filtering ten drops of the mixture through a small piece of filter paper, drying the residue on the filter, put the piece of filter with residue in ten drops of c. p. methyl alcohol, dissolving out stain thoroughly by agitating with a glass rod; with this stain a freshly made blood film and add more of the one or the other primary solution until the test gives the desired staining reaction. A light pink or neutral color of the erythrocytes is most satisfactory, since with this reaction the other blood elements stain clearly; if the erythrocytes stain an intense pink the blue is over neutralized and the chromatin and granules do not stain well; if the erythrocytes stain blue there is not the contrast necessary to show clear definition of the other elements. When finished the stain should be filtered without washing and air dried thoroughly. Make a saturated solution of the power in c. p. methyl alcohol, which is about

a one-third of 1% solution, filter, then add one-third the quantity of c. p. methyl alcohol. More alcohol may be added if desired, making a weaker stain, which requires a relatively longer time for staining.

Test the reaction of the alcohol* before using, making sure that it is not acid, since much of the c. p. methyl alcohol contains at least a trace of acetone, which may be sufficient in any given sample to materially interfere with the blue. If the alcohol is found to be even faintly acid it should be rendered neutral with a sodium bicarbonate solution before dissolving the stain, otherwise the eosin will be too intense and the blue very pale. If the alcohol used has not been corrected when necessary, then a little of the sodium bicarbonate solution may be added to the finished stain to intensify the blue, and if it has been over corrected this may be neutralized by adding a little acetic acid testing the stain on blood films until the desired staining reaction is secured. Keep the bottles quiet to avoid distributing through the solution any precipitate that may form. With a clean pipette freshly rinsed in c. p. methyl alcohol draw ten to fifteen drops of this solution from the center of the liquid, put on the unfixed film and leave one minute, then add to the stain on the slide one to two times as much distilled water and leave two minutes more, wash quickly five to ten seconds under stream of distilled water, dry promptly with blotter, then dry thoroughly in air or over flame at distance easily borne by hand.

If preserved in the dark well corked this stain will keep for months, and the powder may be preserved indefinitely.

The chief advantages of such a combined methylene blue eosin stain are the following:

The rapidity of application; the power to stain cytoplasm, chromatin and granules; the good differentiation of leucocytes; the clear staining of pathologic elements, and the durability of both the stain and the stained preparations. Plate 1 shows a photograph of a water-color reproduction of a malarial blood stained with this methylene blue eosin stain.

It is preferable to make the films on slides, which should be thoroughly cleaned with alcohol and polished just before taking the blood, and the drop of blood should be transferred to

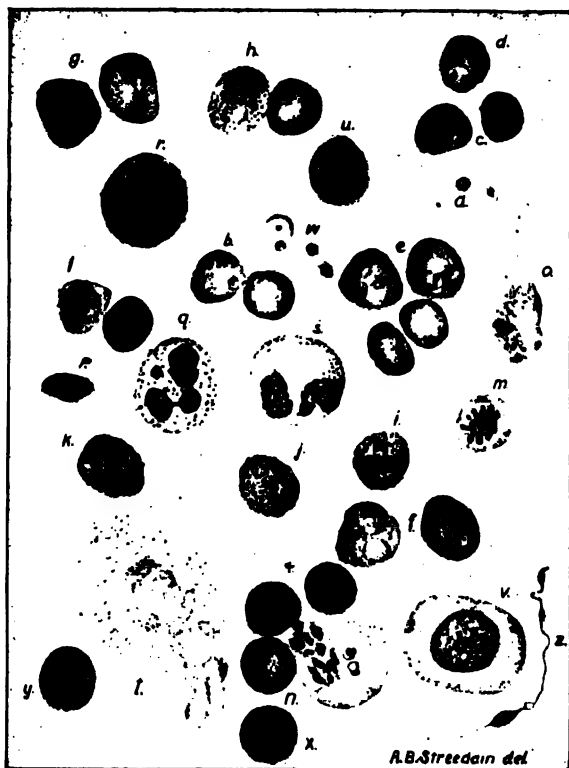


PLATE 1.

DESCRIPTION.

The plate is a photograph of a water-color picture of the blood of a patient who had suffered about one month with tertian malaria of the double type. The picture is a composite one, all made from blood films taken at the same time and all figures except o, p, r, x, y, and z, were found under one cover glass; the organisms being unusually abundant in various stages of development.

The films were stained with a modified Wright's stain, and the figures which were outlined with a camera-lucida, show a magnification of about 1000.

a Young organisms free in the blood, cytoplasm stained blue, chromatin or nucleus red.

b, c, d, e. Early stages of development of organism in erythrocytes, ring appearance.

f, g, h, i. Later stages of development, distinct enlargement of invaded erythrocytes which stain less intensely and show a pinkish granular stippling, the pigment of the organisms appearing and gradually increasing.

j. Adult organism, pigment abundant and scattered, nucleus beginning to divide.

k. Adult organism, nucleus divided and scattered through organism.

l. Organism undergoing segmentation, pigment collected.

m. Organism undergoing segmentation, rosette appearance, pigment collected in the center.

n. Organism showing segmentation complete, young organisms being liberated from the ruptured erythrocyte.

o. Crushed erythrocyte containing partially developed organism; the granular appearance of erythrocyte distinct, the free granules staining more intensely than in unruptured erythrocytes.

p. Adult organism free in the blood.

d. Young organism with two nuclei.

f. Erythrocytes invaded by two organisms.

y. Intracellular flagellum.

z. Extracellular flagellum, pigment in organism and nucleus near the filamentous extremity.

v. Blue stippled erythrocytes showing degeneration.

w. Blood plates.

x. Blood plate lying upon erythrocyte.

q. Polynuclear leucocyte, multiple intensely stained nuclei, neutrophilic granulation of the cytoplasm and mass of pigment from malaria organism.

r. Mast cell, nucleus not very intensely stained or well defined, basophilic granulation of cytoplasm, showing large granules.

s. Rosinophile, intensely stained nuclei and pink granulation of cytoplasm.

t. Crushed leucocyte.

u. Lymphocyte, intensely stained nucleus, light blue non-granular appearance of cytoplasm.

plasm.

v. Large mononuclear cell, moderately stained nucleus, neutral granular appearance of cytoplasm.

Several erythrocytes without organisms are shown.

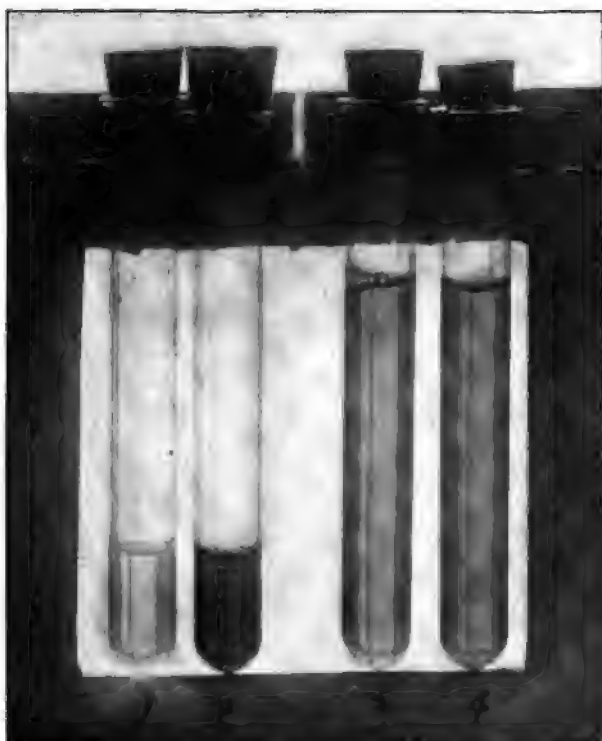


PLATE 2.

DESCRIPTION.

No. 1.—One-half c. c. of a 1 to 500 aq. sol. formalin.

No. 2.—The same as No. 1. with a good size drop of blood added, the formalin laking the blood, making a red solution.

No. 3. The same as No. 2. with the addition of two c. c. of a 24-hour incubated bouillon culture of typhoid bacilli which has been killed by adding to the culture 1 per cent formalin, thoroughly shaking the culture before adding to the blood solution, also the mixture in the tube to assure suspension of the bacilli. Non-typhoid blood being used the reaction is negative, the mixture in the tube appearing turbid like the culture, being colored somewhat by the blood.

No. 4. The same as No. 3, except that typhoid blood is used which at first gives the same appearance as No. 3, but in one-half to one hour the mixture shows a flocculent precipitate suspended throughout, which consists of masses of agglutinated typhoid bacilli.

the slide from the skin as quickly as possible after it appears. The sooner the blood is stained after it is taken the better the staining reaction. Films 24 hours old will give good results, but they rapidly deteriorate with age, although old films may suffice for diagnosis.

In examining the specimen choose the thinnest areas of the films as they show the best stain differentiation.

I have used many of the blood stains for different pathologic conditions, but during the past year I have relied upon this stain exclusively, and can fully corroborate Cabot's² opinion expressed in the new edition of his work on the blood, viz.: that it is the best for all purposes for which one uses a blood stain at all.

There may develop some modifications in methods of preparation, but I believe in general it has been demonstrated superior to all other stains as a universal blood stain.

During the past few years the Widal agglutination test for typhoid fever has proved itself a most valuable diagnostic aid in differentiating continued fevers, and recently there has appeared a modification of this test which must certainly add greatly to its usefulness.

The new test consists of a macroscopic agglutinative reaction occurring in a bouillon culture of typhoid bacilli killed with formalin by adding to this dead culture typhoid blood or blood serum. This test obviates the necessity of a living typhoid culture and of a microscopic examination, making it as easy of application by any physician as a test for albumen, which in appearance it resembles very much.

Ficker³ of Berlin reports very favorably upon its use and considers it thoroughly reliable, being applicable to dried blood as well as fresh blood.

Radzikowski of Vienna reports 17 cases in which he has tested this method, using fresh and dry blood of typical typhoid cases which gave the Widal reaction and found it positive in all. He concluded that it is simpler than the Widal, is as reliable, requires shorter time and enables every physician to make his own typhoid tests.

Ruediger⁴ of Chicago reports 34 cases, and, as his method of applying the test is one of the simplest, I will give it somewhat in detail:

Inoculate 500 c. c. bouillon with *B. typhoid*, incubate at 36° for 24 hours, and add to this 1% formalin. Make a 1 to 500 formalin solution. These are the two stock solutions. Put 4 drops of blood in 2 c. c. of the formalin solution which makes approximately a 1 to 10 dilution of the blood, likewise takes the blood. Add 1.0 c. c. of blood-formalin mixture to 4 c. c. of the bouillon culture which makes approximately 1 to 50 dilution.

In a few minutes to an hour there appears a coagulum suspended throughout the solution which gradually settles, resembling very closely the albumen test of urine when small amounts of albumen are present.

This contrasts clearly with the control solution which shows a fine cloudiness characteristic of the bouillon culture.

Ruediger has found that the reaction will appear in 1 to 1,000 or 1 to 10,000 solutions, after 3 to 10 hours. He considers it fully as reliable as the Widal test, also found it applicable to dried as well as fresh blood, obtaining a characteristic reaction with dried blood one year old. His 34 cases which showed the reaction were 30 cases of typical typhoid, one doubtful, two paratyphoid and one tuberculosis.

All observations, so far as I have gathered from the literature, agree that it is fully as reliable as the Widal test, and it has the great advantage of placing in the hands of every physician a very simple means of testing the blood of his own typhoid cases, and, I am sure, must make more accurate the diagnosis of the great number of continued fevers.

In a series of about fifty tests on typhoid and non-typhoid blood, I have obtained results quite in accord with the observers quoted.

There is the possibility of the application of this principle giving similar macroscopic evidence of other infectious diseases. Investigators are already experimenting along this line and we may hope for fruitful results.

*Kahlbaum, of Berlin, supplies a methyl alcohol which is acetone free. It can be secured of Elmer & Amend, New York.

¹Wright. Jour. of Med. Research, ii, p. 138, 1902.

²Cabot. Clinical Examination of Blood, p. 42.

³Flicker. Berlin. Klin. Wochenschr., No. 45, 1903.

⁴Radzikowski. Wein. Klin. Wochenschr., No. 10, 1904.

⁵Ruediger. Jr. of Infectious Diseases, Vol. 1, p. 262, 1904.

DISCUSSION.

Dr. HUGHES: In many instances the results of laboratory experimentation have been hailed with satisfaction by the clinician, and this is one of them. It recently occurred in my experience to have a case which I diagnosticated as walking typhoid developed into delirium grave. The history was obscure and I was not familiar with the family. The character of the symptoms suggested that the man had had typhoid and I ordered an investigation. The laboratory report so proved. The man had had typhoid. You may get the Widal reaction ten years after a man has had typhoid fever. It persists a long time. I judged in this case from the symptoms and from the reaction that it was true delirium grave following typhoid—time typhomania. If I had Professor Crandall's resources at hand I could have made a laboratory investigation on the spot.

Dr. BURR: This paper, practical as it is, will be especially valuable for the Transactions, and I would request that Dr. Crandall give us a sufficient number of illustrations to fully illustrate the article.

ARE THE INSANE RESPONSIBLE FOR CRIMINAL CONDUCT?

*By John Punton, M. D.,
Kansas City, Mo.*

The prevalent use of the plea of insanity as a shield for crime renders its medico-legal study of more than passing interest.

In view, therefore, of its extreme importance and practical significance it is somewhat surprising to find the scant attention which it has received in the published transactions of this worthy organization. Moreover the contributions which have appeared, together with their discussions, have met with no definite mutual agreement, thus leaving the novice in psychiatry to grapple with this momentous question largely unaided by those whose experience and competence enables them to speak with authority.

As one of the younger accessions to your ranks, I trust it will therefore not be construed as presuming on my part, in thus attempting to deal with a subject of such acknowledged perplexity, for my purpose is not to assume the "role" of a disgruntled critic, but rather the attitude of an interested student of practical psychiatry, inquiring after truth of those whose opportunities for clinical research and ripened experience qualifies them to impart reliable information and instruction concerning the question at issue.

Whether justified or not it is my belief that much of the confusion that now prevails relative to medico-legal matters in courts of law are largely due to the apparent indifference manifested by such specialized organizations as this, to furnish the general medical profession with definite specific knowledge concerning the abstruse problems of which they alone are the only recognized capable exponents. Hence in every commu-

nity where insanity becomes a plea for crime, and the question of mental responsibility is referred to the local medical profession, it is very distressing to find the wide difference of opinion that prevails between apparently equally competent medical witnesses relative to its validity. If, however, this Association has any function distinctly its own it would seem to be the right to decide whether the insane are mentally responsible for criminal acts, and, if so, what adequate disposition should be made of them in order to meet the ends of justice. That medical men are not agreed at the present time in reference to this matter is very clear, but it is certainly highly desirable that a consensus of opinion be attained by no less authority than this able body of competent alienists, as to the mental conditions which ought to exonerate a criminal from punishment.

In this connection we are reminded by Judge Emery, of the Supreme Court of Maine, that the science of medicine is the oldest of sciences, that it has attracted to its ranks the best intellects of every age, that its disciples have been distinguished for their zeal, ability and untiring labor, and that in the thousands of years of its existence it must have elucidated and established a vast number of truths, which its devotees should be able to state clearly, impartially and accurately in courts of law. Why then, he asks, do our courts find medical evidence so often unsatisfactory? Lawyers, he claims, understand that medicine is not an exact science, and that the exact causes and course of disease of both body and mind are hidden from inspection, and can often be only surmised, but these allowances do not, to the lawyer's mind, account for all the faults of medical testimony.

The courts, according to this eminent authority, desire to know not so much individual, as the consensus of opinion of the entire medical profession. It is supposed by the courts that the medical profession has accepted certain conclusions as correct in the present state of medical science many new theories may be started and numerous modes of treatment suggested by the few, while the great body of the medical profession refuse to sanction or adopt them.

The consensus of medical opinion is, therefore, what the courts desire, and not individual opinion. Now, applying this principle to the subject of my theme I presume no one here will deny the proposition advanced some time ago by Dr. Mercier,¹ the noted English alienist, "That very few indeed of the insane are wholly irresponsible," by which he says he means that there are very few indeed of the insane who ought never to be punished for wrong-doing; or to put it as he states with brutal plainness: "It is in many cases right and just to punish an insane person for wrong-doing."

This, I admit, is contrary to common belief and legal opinion, for there is a very prevalent notion abroad which is expressed from time to time in sentimental expressions of horror and disgust at the very idea of ever punishing an insane man under any circumstances or for any act of wrong-doing.

It is, however, this universal belief in immunity of punishment that constitutes the foundation for the plea of irresponsibility for crime on the ground of insanity. That total and complete irresponsibility of the insane is the magnetic watch-word that insures good care and kind treatment to those unfortunates confined in our state and private insane hospitals, is undoubtedly true and the theory in itself is a most excellent one when used in its proper sphere or strict relation, for, as Dr. Wherry² aptly states: "It alone has aroused the sympathy of all God's people for this most unfortunate class; it alone has broken the shackles from a thousand maniacs chained in dungeon cells; it alone has reached out its charitable hand and protected the wards of the state; besides rang the death knell to brutality in hospitals for the insane, and gave us kindness, gentleness and brotherly love instead."

Admitting all this, yea, even more, it is nevertheless, according to the writer, a false doctrine and cannot in fact be substantiated by practical clinical experience with the insane, but for the good it has already done, and is still doing, it is well to allow its influence to reign supreme in hospitals for the insane, but, should never be held in courts of law as the true and correct criterion, or standard for justice in all cases of insanity, as it is contrary to all the facts and evidence furnished by practical clinical psychiatry. It is at this point, however,

where law and medicine come in conflict both by authority and teaching for the majesty of law as it now stands declares that no insane person is responsible for his criminal acts, indeed in a strictly legal sense there is no such thing as an insane criminal—concede the insanity of the accused, and he is at once placed outside the ban of law, and not under its punishment. This theory of total and complete irresponsibility of the insane, therefore, corresponds to that form recognized by lawyers as legal insanity in contradistinction to medical insanity.

The fallacy of this view, however, was ably set forth by Dr. Bancroft³ in his essay on "Legal and Medical Insanity," which he read to this Association in the year 1900. In this he clearly demonstrates how imperfectly insanity is understood by the lawyer as well as the general medical practitioner and emphasized the need of a definite consensus of opinion by those most competent to judge, relative to its misleading character, both for its educational as well as humanitarian purpose.

To the legal mind any act in the insane, which in the sane would be criminal, lacks every element of a crime. The act is impelled from this standpoint by an insane impulse or delusion which cannot be resisted or controlled, hence is not the result of any criminal intent. A sane man, however, who has committed a crime, may become insane either before or after conviction for the crime, but the moment this occurs he is no longer a criminal, but an insane man and thus free from legal punishment.

It would seem, therefore, that Dr. Mercier's claim, viz.: "That the insane should be punished for wrong-doing," is an open violation of the common law of both England and America. He, however, qualifies this statement by adding that "No insane person ought for any act be punished with the same severity as a sane person ought to be punished for the same act," and he also says "That every institution for the insane is conducted in accordance with this great principle."

That insanity carries with it a certain immunity from punishment all will agree and there are good, sound, scientific reasons why this is true, but every alienist of wide experience recognizes that there are degrees of responsibility associated

with insanity, and that for many of their misdeeds the majority of the insane should be held responsible and consequently incur some form of penalty or punishment.

That this is the actual consensus of medical opinion by those most competent to judge is clear, for the principle of petty punishment is practiced in every hospital for insane of my acquaintance. Every medical officer of our state and private insane hospitals realizes that many of the patients in their institutions often commit misdemeanors deliberately, wilfully and with malice aforethought, besides knowing right from wrong and with full understanding of the nature, character and even consequence of their misdeed.

Hence we find the insane subject to mild forms of punishment according to the nature of their offense, such as not allowing them to attend the weekly dances, for fighting, or being refused the privilege of their parole after an attempt to elope, or if caught pilfering, the weekly allowance of tobacco is cut off, or if abusive to the medical officer, is removed from a convalescent to a more disturbed ward. These and many other similar penalties are imposed upon the inmates in every well-managed institution, not simply to maintain discipline, but also as a penalty for misconduct, and while the term punishment may be objected to as having the sound of harshness, yet, whether these inflictions be considered merely the withdrawal of certain privileges, or as precautionary measures, and not true punishments, in order that this ruling may be valid, the penalties imposed must be permanently enforced. As a matter of fact, however, the withdrawal of the privilege is not permanent but temporary, and subject to the same construction as that which applies to the sane criminal when he is sent to prison and his liberties and privileges curtailed for a definite period. They are, therefore simply differences of degree and not of kind, and consequently equivalent to mild or severe forms of punishment. In order to prove that the insane possess powerful control over their conduct, Dr. Mercier mentions the fact that in those patients he allowed "pocket money," the prospect of having this stopped restrained them from practices of mischievousness, destruction and other evil habits. Under no circumstances, however, we are informed,

has the superintendent of a hospital the lawful right to punish in any way an insane person, because legally such persons are not responsible. It is surprising, however, in many criminal cases where insanity is used as a plea to exonerate crime, how the various members of the medical profession as well as the general public insist upon punishment as being the only remedy for justice; even where the evidence favors the views of undoubted insanity of the accused. The same spirit incited the late Dr. Hammond, when placed on the witness stand in the celebrated trial of Guiteau, who assassinated President Garfield. When asked for his professional opinion, Dr. Hammond exclaimed, "He is insane, but hang him."

According to law, however, we are told that under no circumstances have we the lawful right to punish an insane person, yet Guiteau was hung.

Not long since in the city where I reside there occurred two atrocious murders. In both the plea of insanity was used as a defense for the crime. In one it was proven that the prisoner, a young married man, was an epileptic, having had characteristic periodic attacks since childhood up to the time of the murder. The crime was a most brutal one, and associated with all the damnable elements which are peculiar to epileptic homicidal mania. Upon being called to examine the prisoner by the defense and having had him under observation during his confinement in the jail, I did not hesitate to pronounce him insane. The marked difference of opinion, however, that prevailed between the medical men and the high state of public prejudice against the accused as well as the result of the trial, which ended in the man paying the death penalty on the gallows is the responsible cause of my appearing before you today, as it at once created a desire to be set right if my views were not in keeping with modern medical thought and practical clinical psychiatric teaching. In order that you may further understand my purpose the following brief editorial taken from one of our daily papers speaks for itself:

"The attorneys for Bud Taylor have the satisfaction of knowing that they did all they could to save their client from the consequences of his crime, and the public has the satisfaction of knowing that the deliberate ambushing and slaying of a

young woman of the community without just cause or provocation is to meet the punishment it deserves—if the verdict of the criminal court shall stand. The defense made out a strong case from its viewpoint. Epilepsy as an excuse for murder saved one man from the gallows a couple of years ago in this city, but it was unsuccessfully evoked in the present case. Only one man of the twelve voted for insanity, and his convictions were not very pronounced.

"In some respects the trial was one of the most remarkable in the criminal history of Jackson county. Not the least interesting feature of the proceedings was the unusual array of experts put upon the stand on both sides and the wide divergence of their opinions. At times this divergence bordered on the humorous, if the matter under consideration had not been of so serious a character. How eminent physicians, graduates of the same school of medicine, could arrive at two entirely opposite conclusions from the same given set of facts is one of those strange things with which this world abounds. If books and clinics and observation and experience, the sum total of knowledge used by the physician in practicing his profession, teach anything, they should teach substantially the same thing all the time. Making due allowance for the difference in personality, temperament, physical condition and all that, the effect of the same cause must generally be of the same nature in all. Even expert testimony cannot overturn the law of induction.

"Between this bewildering conflict of evidence the jury evidently took the only view which comports with common, everyday sense, and that was that a man who showed sufficient sanity to plan and carry out a murder with the intelligence and deliberation shown by Taylor in the killing of Ruth Nollard was not suffering from a form of insanity which would give him immunity from punishment for his foul crime. The jury evidently thought that Taylor's fits didn't last three days while he lay at his window with his rifle trained on the street waiting for his victim, whose offense was that she had refused his unwelcome attentions."—K. C. Journal.

The second case was that of a young married woman who shot her husband, and as he fell to the ground mortally

wounded, kicked him in the face and spat upon him, all because, as her relatives alleged, he had betrayed her as a lover and refused to support her as a husband, after a forced marriage. The plea of insanity was used as a defense for the crime. Being called by the defense to examine the woman, and having visited her several times at the jail, it was my opinion that she was not insane even at the time she committed the deed and so testified. The result of the trial ended in her being sentenced to ten years in the penitentiary. Her lawyers, however, took an appeal, and a new trial was granted by the Supreme Court of Missouri. In the meantime and during the interval, she married again, while her father and brothers were arrested and charged as being accessories to the crime. One of the boys was found guilty and sentenced to serve two years in the penitentiary. In the second trial the woman was acquitted, but not before her brother had served his term of imprisonment. By her acquittal the jury practically said that a crime, taken in its legal acceptance, was never committed, hence her brother had actually served a term in the Missouri penitentiary for a crime that was never legally committed. Is he, therefore, to be considered a legal convict? And how was it possible for him to assist in the commission of a crime that never in law happened? These are questions that so far have not been answered.

In 1901, Dr. A. B. Richardson,⁴ of the Government Hospital, Washington, delivered an address to this Association on the subject of "Graduated Responsibility," in which he maintained that graduated responsibility before the law was not only advisable but necessary, and that judges and jurors as well as legislators, should strive to vary the penalties imposed not only to meet the degree of the criminal act, but also to fit the individual himself.

That some of the insane are wholly irresponsible for their misdeeds and justly demand complete immunity from all forms of punishment all will agree. But it cannot successfully be denied that a very large number, perhaps the majority of the insane, are to some extent at least responsible for much of their misconduct. If, therefore, we can as a profession, adopt the truth implied in these two propositions originally set forth

by Dr. Mercier, viz: (1) "The total immunity of some insane offenders for some acts;" (2) "The mitigation of punishment in more or less degree for all crimes done by insane offenders," we shall not only have taken a great step in advance but also formulated a more just and equable medico-legal standard for this class of miscreants.

The practical importance of securing a consensus of medical opinion regarding these important questions is therefore obvious as at present we have no absolute guide or standard of authority to which we can refer. If, as we are informed, our courts of law desire to know, not so much individual as the consensus of medical opinion by those most competent to judge concerning medico-legal problems, who, I ask, has a better right to furnish the solution of these problems than this worthy organization?

Unless we are agreed, how can we expect our courts to deal justly with such offenders? In an able article by Dr. C. W. Hitchcock⁵ of Detroit, Mich., on "Mental Responsibility," which he read at the annual meeting of this Association in 1900, he states "That he ventures to hope that his desire for the establishment of some sort of standard to which such cases as he reported shall be made to conform or by which they may be measured or which at least may serve as a guide as well as for the purpose of comparison, is not entirely utopian or chimerical. Moreover we should also endeavor to set forth what mental conditions should exonerate the insane offender from all forms of punishment." Wherry, in his able article, claims that "The most reliable and efficient test for responsibility when insanity is pleaded as a defense for crime, is this: Is the crime charged the product and direct result of the insanity alleged?" This, he states, requires that the insanity shall first be proven, but does not indicate that the establishment of insanity necessarily carries with it a condition of irresponsibility. "If the alleged insanity is proven to be associated with a vicious nature; if the crime charged is the product and direct result of hatred—a malevolence or evil passions, or wicked desires—then the act is vicious in its nature and vice should never be vindicated simply because disease has given it undue prominence." A man is not responsible for his insanity but is

responsible for his vice. If, on the other hand, conscientious insanity be established, namely, if the prisoner be the victim of delusions or hallucinations, if his processes of reasoning be imperfect and misleading, though starting from correct premises, or perfect and logical but based on premises which are untrue; if while drawing conclusions as best he can according to his light, the light becomes a flickering, wavering will-o'-the-wisp that leads him into devious ways where saner men would never go; if he uses the judgment disease has spared in an effort to do what, to him, seems right, even though it leads to a bottomless pit, then is he not only insane but honestly and conscientiously so. A man who yields to the dictates of desire is vicious, whether he be insane or not, but a man who acts in response to the dictates of a diseased judgment is conscientious whether he be insane or not. The insane may therefore be divided into two classes—those dominated by desire, and those dominated by diseased judgment; the former constitute the vicious insane, the latter, conscientious. The one is responsible, the other irresponsible.

According to Dr. C. F. McDonald⁶ of New York, the real test of responsibility is not a knowledge of right or wrong with reference to the particular act, but knowing the right and knowing the wrong, has the man the power to choose the right and avoid the wrong? It is therefore not a question of knowledge but the power to choose between two courses of action. If he has not such power, then his act is the product of his disease and he is not responsible. There is therefore no legal test of insanity,—every case must be decided on its own merits, but the basic facts are that insanity is a mental disease and the product of mental disease cannot be a crime.

In conclusion it would seem highly desirable that this Association take some definite action in formulating certain deductions to which we can all agree relative to the mental responsibility of the insane and thus tend to overcome the prevalent misconception concerning insanity. Such a course would also furnish a reliable guide by which the interests of both law and medicine could justly be subserved when insanity becomes associated with crime. If these imperfect remarks could serve

the means of such a happy consummation, their purpose will have fulfilled their highest mission.

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¹ Mercier: "Criminal Responsibility of Insane." New York Medico-Legal Journal, September, 1898.

² Wherry: "Responsibility and Crime." Alienist and Neurologist, November, 1903.

³ Bancroft: "Legal and Medical Insanity." Transactions American Medico Psychological Association, 1900.

⁴ Richardson: "Graduated Responsibility." Transactions American Medico Psychological Association, 1901.

⁵ Hitchcock: "Mental Responsibility." Transactions American Medico Psychological Association, 1900.

⁶ C. F. McDonald: "Mental Responsibility." Transactions American Medico Psychological Association, 1901.

DISCUSSION.

THE PRESIDENT: I do not intend personally to participate in the discussion on the subject, but wish to correct what I think to be an error in the paper in regard to the late Dr. Hammond. It is stated that on the witness stand Dr. Hammond said in regard to Guiteau, "He is insane, but hang him." Now, Dr. Hammond was not a witness in the Guiteau case at all. The remark was not made in any court. Its origin is a supposed newspaper interview in which he was quoted as saying that if we shot a mad dog for the safety of the community, we would be equally justified in shooting a mad man. If I am not mistaken in my recollection of the matter, Dr. Hammond at the time repudiated the views ascribed to him, or at least modified the inference intended to be drawn from them. As one of the witnesses for the Government in the Guiteau case, I would like to say that while I do not understand Dr. Punton as intimating that this was a case where an insane man was punished, the inference might be drawn, and I should like to say that the opinion given by myself and many others has had no change in the twenty years that have elapsed. I believe Guiteau was a sane man and properly punished.

DR. SPRAGUE: In spite of the antipathy toward discussion, I would like to say a few words on this important subject. I feel that the speaker has only touched upon part of the matter, that is, the reliability and standing of expert testimony; and, I think, possibly, the making of that testimony trustworthy in the sight of the law is within the power of this Association. A case reported in my state, Kentucky, emphasized this point very strongly. It was an important murder case in which five men were called to give medical testimony. The case was prosecuted by a very able state's attorney and defended by the late representative to congress, W. C. P. Breckenridge, one of the most efficient lawyers in Kentucky. Of the five men chosen as medical ex-

perts, one was a man who had just graduated in medicine, the second was a general practitioner, the third had held an appointment in a state hospital where he had had some experience in insanity for three years, the fourth had had nine or ten years' experience in Kentucky asylums, and the fifth had been a physician in insane hospitals for fifteen years. All five testified as experts, and the testimony of the least capable had the same weight before the jury and the lawyers concerned in the case as that of the most experienced. The testimony of the real experts did not differ widely. The others' testimony showed no knowledge of modern psychiatry, they all were laughed at by the jury, and the case ended in a fiasco. I believe that through this Association or in some other way the courts should be impressed with the fact that medical experts should be commissioners appointed to testify because of their ability. The testimony of such men would not be laughed at as it is at present, and as it will be as long as things remain as they are.

DR. TOMLINSON: I believe that any effort we might desire to make to improve the status of the medical profession with regard to expert testimony, will have to wait upon public enlightenment and the ethical education of the legal profession. There is not, to my knowledge, a public declaration on this subject by the medical profession; but there are numerous expressions of dissatisfaction from the legal profession with regard to expert testimony. This dissatisfaction, so far as I can determine, is due to the fact that expert testimony is not positive, and that two witnesses form apparently contrary opinions from the same statement of facts. However, the discrepancy is not real, but an artificial one, created by the opposing counsel, because they state the facts differently and limit the scope of the answer. It has been my experience that opposing counsel do not want the truth, but only so much of it, and such a statement of it as will be favorable to the contention of their clients. Besides, that trait in human nature that prompts us to resent the possession of special knowledge by another, makes the court or counsel disclaim against the basis for expert opinion. The real expert, who is so because of training and experience, hesitates to express a positive opinion, because he knows that the human organism does not always respond in the same way to the conditions in its environment, and that no two individuals are alike. Whereas, legal definitions are limited and arbitrary, and do not consider the question of degree. These are the difficulties which confront us whenever this question comes up for discussion. Then, too, there is the difficulty referred to in the paper read by me before this Association. The terms used do not have the same significance to all who use them. In our language there are so many synonyms, each with a different shade of meaning, and these differences are taken advantage of by opposing counsel to create the impression that they indicate a difference of opinion among experts as to the significance of the same statement of facts. For these reasons I am of the opinion that education in this matter must begin

with the legal profession and be extended to the general public, so that the significance of expert testimony in medicine may be appreciated, the real cause of the opprobrium attached to it properly understood, and the responsibility be placed where it belongs. However, I do not anticipate the coming of the millenium in the near future.

DR. DEWEY: Dr. Punton has given us a very interesting paper and has brought out in a striking way the difficulties that are met with in these criminal cases, where, as Dr. Tomlinson states, the effort is not to arrive at the truth but to make one side or the other give out a plausible appearance to the jury, and I feel sorry to say that whatever absurdities there may be brought out from time to time, the testimony as understood by the public and perhaps expressed by reputable men, leaving outside all whose testimony may have been given from a lack of knowledge and a lack of principle in the expert himself, these absurdities are well matched by the absurdities in those cases in which the jury is constantly finding sane persons wholly irresponsible and acquitting them of crime by means of what is called the "insanity dodge." On the other hand, in regard to those who are actually insane or are suffering from a form of insanity which cannot be understood by the general public or by the legal fraternity, I only wish to say one word as to what I think is the remedy for this difficulty of which I have written and spoken for a good many years. I think that we must find some measure, for example, that which exists in Great Britain, especially in England, where persons acquitted of crime on the plea of insanity are sent to a criminal insane asylum. The Broadmoor Asylum receives all such cases. No person committed there can get out again until he is released after a thorough investigation and laborious process in court, in which all the facts are considered, and practically there is not included the question of the person being unjustly committed there or easily released subsequently through technical formalities. The state of public opinion is such that juries will now commit patients that are subject to epilepsy, we will say, and most of the time in lucid interval; paranoiacs who are capable of reasoning on subjects not in the line of their delusions; persons suffering from circular insanity, transient mania. Such a person will not be sent to the ordinary asylum. The fact of a mistake being committed is such a grave matter that it is abhorrent to the American people, and we send such patients to the ordinary asylum, with chances probably of an early release on some legal technicality. The matter in this country is much complicated by the fact that we have a national government and state governments. If our government were a union, I believe long before this we would have had a criminal asylum like that in England.

DR. WAGNER: The fact that the existence or the non-existence of insanity in some of these cases does not appear to interest the jury as much as some other things was illustrated by a case I had some years ago. In the state of New York idiots are not supposed to be

cared for in state hospitals for the insane. The matter was the subject of controversy between the counties and state hospitals. We had at the Binghamton State Hospital a case of idiocy. The State Commission in Lunacy directed that he be sent to the county house. The superintendent of the poor resisted the order and refused to remove him. The State Commission in Lunacy directed that a test be made by carrying the case into court. The patient was a typical case of idiocy. When the case was tried we had Dr. Carlos F. MacDonald, ex-President of the State Commission in Lunacy, with us to testify to the fact of idiocy. We had with us Dr. Charles W. Pilgrim, Superintendent of the Hudson River State Hospital at Poughkeepsie, N. Y., who also testified to the fact. Other testimony was offered and we produced the patient in court. It was a typical case. Our lawyer presented the matter very forcibly. Then the attorney for the county arose and the only medical witness he called was a superannuated physician who for thirty years had made visits to the poor house. He testified that the man was insane and not an idiot. Then the lawyer for the county addressed the jury and said: "Gentlemen, if you find that this man is insane the state of New York will care for him in the splendid institution provided for such persons, but if you find that he is an idiot, you as the taxpayers of Broome county will be saddled with his maintenance for the rest of his life." It took the jury but one minute to decide the case. We had the patient with us until he died.

DR. HUGHES: I am glad this subject has come up before this body of men who are so capable of discussing the subject. This subject has been discussed by men who have not had the clinical experience necessary to determine the question. This of course is not a question of sentiment. It is a question of clinical observation, and the man who might properly discuss this question should be the man who, as Esquirol said, has lived with the insane, who has learned their habits, their wants, their modes of expression and has been able to make a psychical analysis of the mind deranged, and it is a matter of fact, of clinical observation, that certain insane persons are undoubtedly responsible for certain sane acts which they commit. The insane are subject to passion, though less regulated passion, like ourselves; they are subject to normal as well as abnormal impulses. They are subject every day, as we may see in our intercourse with them in the corridors of a hospital for the insane, to the influences which operate normally upon the human mind, notwithstanding they distort some of these influences in an abnormal manner of thought, speech and action. The discipline and regulations of an institution or hospital for the insane are based on this well-recognized fact in psychiatry and in psychology. In my own observation I have seen men who were undoubtedly responsible for the infractions, wilful, deliberate, voluntary infractions of the regulations of the institutions over which I have had the honor at different times in my life, sometime in the past, however, to preside. As I remember how forcibly this question was brought to my mind by a

gentleman of ability, who was a paranoiac, of much more ability in some directions than I myself possessed, especially in questions in history. Now that man told me, after trouble with another patient in the institution, if he had killed him he would not have been held responsible. "I am legally a lunatic," he said, I am non compos mentis in the eyes of the law. I could not be arraigned on the charge of murder because I have a certificate sworn by two reputable physicians and approved by the court." He was a reasoning maniac. He could reason as well as some men in the halls of the legislature, especially some of the Missouri legislature, and his moral sense was better. Now that man was conscious of the nature of his environment, he was fully conscious of the fact that he was classified as a lunatic, that he was held as not responsible because he had the reasoning mania of Esquirol. He can reason well in any direction. The only difference between him and other men was that he reasoned wrong in the line of his paranoiacal delusions, he reasoned rightly from wrong premises, as John Locke said insane men do. He reasoned from delusional premises, but when delusion was not involved, this gentleman was sane upon every other subject. As Dr. Isaac Ray said in a discussion of the subject many years ago, which I had the pleasure of hearing at a meeting in Philadelphia, "It is a dangerous precedent to establish that an insane man is insane on all subjects, having once been pronounced legally insane, notwithstanding it is a clinical fact, a psychological fact that the insane man is not always insane on every subject that he has rational ideas on many subjects. I wish to put myself on record in harmony with great Corypheus of American psychiatry.

DR. LANGFON: One thing impressed me in regard to this admirable paper on a subject which has not received the attention which it deserves, and that is that we take some action formulating the conclusions of this body on this important subject. I would suggest that a set of resolutions be framed so as to embody them, and that they be brought before the legal profession. I would move the appointment of a committee to frame them, and I would also move that Dr. Punton be made chairman of that committee.

DR. PUNTON: I do not wish to take up any more time. I thank the members for their generous discussion of my paper. I wish to explain that the quotation from Dr. Hammond was taken from the *Medico-Legal Journal of New York*. I supposed Dr. Bell knew what he said.

ORGANIC DEMENTIA.

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This term has not been employed in the majority of classifications, the symptom-complex being included under various titles, as insanity from gross brain lesions (Kraepelin); psychoses following gross organic brain disease (Berkley); paralytic insanity, or organic dementia (Clouston); insanity dependent on cerebral diseases (Reference Hand Book of Medical Sciences), etc. Mendel adopts the following classification of *organic psychoses*: First. In diffuse cortical disease of the brain; (a) general paresis; (b) dementia senilis; (c) arterio-sclerotic psychosis; (d) acute hemorrhagic encephalitis; (e) syphilitic psychosis. Second. In focal diseases of brain; apoplectic insults, tumors, abscess, multiple sclerosis. Some writers have no room for organic dementia under any title, but may give a few allusions to it under the general etiology or symptomatology. In reports of nearly one hundred American hospitals, I found only nine which use the term in their classification, while thirteen use various synonyms or paraphrases. Fifteen reports contain no classification whatever, and the remainder have no form which by any possibility could be mistaken for it. Two hospitals follow Clouston in presenting in separate forms "paralytic dementia" and "general paresis," and one of these adds to the above "dementia after paralysis."

It seems to the writer that it is best to employ the term organic dementia to embrace all psychoses dependent on gross brain lesions, whether localized or diffuse, whether affecting the meninges, cortex, white matter, or basal ganglia; with the exception of dementia paralytica and dementia senilis, which have a clinical picture sufficiently characteristic, as a rule, to

warrant separate places. The term is concise, sufficiently descriptive, and will serve well in the present state of psychiatry. It also has the advantage of including the greater number of cases of so-called traumatic insanity. We can, if desirable, add subtitles, such as are adopted by some authors, or include them in the etiology or differential diagnosis. It must be borne in mind that there are some cases presenting various combinations of lesions, both local and general. At the Connecticut Hospital for the Insane, we include Huntington's chorea and psychoses following insolation under the head of organic dementia.

Organic dementia may be ascribed as a deterioration process, usually progressive, involving both the intellectual and emotional spheres in varying degrees, and depending on an antecedent cerebral lesion, or lesions, either diffuse or localized. It is my purpose to give brief abstracts of fifty-eight cases which have been admitted to this hospital from October 1, 1898, to September 30, 1903, and an analysis of them, in order to contribute my mite towards a complete clinical picture of the psychosis. These do not include cases of Huntington's chorea, which are now being studied by Dr. A. R. Diefendorf. It would be of value to know the exact number of cases of cerebral lesions during this same period, but complete statistics are not available.

We can gain data of some value from the reports of the State Board of Health of Connecticut, for the years of 1899, 1900 and 1901—all thus far published—under the *causes of death*, tabulated as follows:

Total deaths from:	1899.	1900.	1901.	Totals.
Nervous Diseases	1,851	1,833	1,853	5,537
Apoplexy	773	795	825	2,393
Hemiplegia	42	47	49	138
Cerebral Embolism	0	0	31	31
Organic Brain Disease.....	0	0	42	42
Tumor	0	0	3	3
Softening of Brain.....	61	45	63	169
Chronic Hydrocephalus	18	19	0	37

If Dana's statement is correct, that "two-thirds of the cases of cerebral hemorrhage *recover* from the *initial* attack," it is evident that there must have been at least *double* the number

of actual cases during these three years. Hence the ratio of psychoses, so far as commitment to hospitals is concerned, must be very small. It would undoubtedly be found to be much greater, if every physician realized the broadening boundaries of psychiatry, and paid more attention to the mental symptoms in cerebral lesions.

We will first give a brief resume of the literature of the subject, to be followed by abstracts of the fifty-eight cases, and these by an analysis of the symptoms, diagnosis, etc.

The mental symptoms occurring in apoplexy have not been sufficiently emphasized in text books. Some cases occur in which they alone are present; confusion of mind, and inability to think, to remember or to fix the attention, with a great emotional excitement and lack of control. In very rare cases some mental symptoms are present, and the mind is never as strong, as active, and as useful as before the attack. In some cases these mental symptoms pass away.

"In sixty-three of my two hundred cases, *marked mental symptoms* were present and were permanent. In two of these *delusional* insanity finally developed. In forty a peculiar lack of *emotional control* was the marked symptom, e. g., constant uncontrollable laughter, frequent crying, distress on mental effort, etc." This is more frequent in lesions of the right frontal lobe.

"In cerebral tumors we find changes of disposition and of mental power," e. g., mental dullness, inertia, and later in the course, especially in tumor of frontal lobes, dementia. "The usual mental state—after a duration of six months—may be described as one of apathy."

"In multiple sclerosis mental disturbance is frequently observed." "A sense of well-being and a boastfulness without delusions which suggests paresis; a lack of control of the emotions; involuntary laughter at times; imperfect memory and a manifest weakening in the power of reasoning and of judgment."

"Besides stupor and continuous lethargy" other psychic defects occur sometimes. Melancholia, hallucinatory excitement, simple dementia, finally a form of mental weakness associated with a peculiar exaltation are the conditions

observed." In tumors of the frontal lobe "it seems that a psychic disturbance (simple dementia, or a morbid *exaltation*) occurs particularly early, and is very pronounced."

Multiple Sclerosis: "The *intelligence* often suffers. The patient's memory weakens and he becomes apathetic. But delusions, hallucinations, and delirium rarely occur. Another phenomenon is *involuntary* laughter. The patient laughs against his will, without being in a happy mood. He may be greatly annoyed by this, the laughter often becoming paroxysmal."³

In multiple sclerosis "it is not uncommon to note some slight dullness of the mind, accompanied by a *morbid placidity* or *complacency* quite out of proportion to the seriousness of the malady."⁴

"Psychoses following gross organic brain disease; dementia post-apoplectic and embolic; thrombotic; rarer forms in abscess of the brain, primary internal hydrocephalus, post-meningitic, syphilitic, disseminated sclerosis, brain tumors, trauma, and insolation. The *most common* type (of dementia) is that following thrombotic or embolic processes in the central ganglia and white substance of the hemispheres; next in frequency comes the post-apoplectic form, the two together including over ninety per cent of the whole number. Hereditary instability of the tissues plays a very important part in organic psychoses—more in the young than aged. The majority of cases occur after the fifth decennary of life."⁵

Gower mentions the following general mental disturbances in brain diseases: "Simple mental failure, memory defect, deficient power of attention, incoherence of ideas, defects of moral sense; want of sense of propriety, soiling and wetting bed without incompetence of sphincters (this of grave import); offences against morality."

In tumors, in addition to above, depression, occasional emotional mobility, hallucinations, delusions, hysteria, and actual dementia.

In disseminated, insular sclerosis "very *rarely* mental disturbance is considerable enough to amount to chronic insanity."⁶

"Mental changes, both general and focal, are *usually* present

in every case of encephalic tumor. The patient is often highly emotional, restless, fretful, irascible, and easily affronted. After the disease has existed for some time he often becomes despondent, indifferent, and apathetic." Other symptoms are: "Semi-stupor, amnesia, defects in orientation, and inability to respond quickly to ideas or to peripheral stimuli." Pre-frontal tumors are usually accompanied by mental degradation or deterioration and special perversions of the higher psychical faculties." Unfortunately the writer does not specify the nature of these "special perversions."

ABSTRACT OF CASES.

Case 1. L. P. Female; married; heredity denied; at 59 had an attack of left hemiplegia, with unconsciousness for one week; and a second attack one year later; paralysis never wholly abated, and she could not walk without assistance; following seizure there was a gradual mental impairment in intellect and memory, with a development of persecutory delusions—was to be whipped, burned, killed, etc.; she was often mute for hours; emotionally was depressed, with frequent outbursts of noisy rage and motor unrest; during her residence at this hospital (eight months) she never exhibited any hallucinations, consciousness was clouded, patient was disoriented for place and person and largely for time, memory was markedly impaired; there was diminution of volitional impulse, and the emotions presented a combination of fear, indifference, irritability and childish pleasure; delusions of persecution persisted; in addition to the hemiplegia she presented ankle clonus in both legs, and a left Babinski; the direct cause of death was dysentery; no autopsy.

Case 2. Male; Italian; single; heredity denied; onset sudden at 43; had a "shock" in April, 1901, symptoms for ten days, character unknown; second attack December 1, 1901, with complete left hemiplegia and motor aphasia; had aural and visual hallucinations; said the people he saw and talked to were his partners, and ran the general hospital, where he remained only two days, being removed because he was extremely loquacious and noisy.

Admitted to the Connecticut Hospital for Insane February 5, 1902, when he presented the following symptoms: Tongue deflected to left on protrusion; sluggish and unequal pupils (right largest, but both dilated); tactile, temperature, pain, and muscular senses unimpaired; movements incoordinate; speech thick and syllabic; complete left hemiplegia; left naso-labial fold obliterated; contracture of left fingers; left arm adducted and flexed at elbow; wrist flexed and pronated; marked Babinski phenomenon in left foot, right plantar reflex normal; knee jerks exaggerated, especially the left; marked left ankle clonus, and clonus of left fingers at times; disturbed sleep,

Mental Status: Disorientation for time, place and person; memory defective for recent events, less so for remote, being able to give some details of earlier life, work, etc.; train of thought shows poverty and limitation to personal needs and feelings; emotions and volition show apathy and weakness; conduct restless, but orderly; one month later he became very restless, constantly disarranging bedding, trying to pull himself up by right hand, etc. From now on he showed rapid mental deterioration, and by April 8th dementia was complete.

Symptoms of exhaustion appeared on April 20th, and two days later complete right hemiplegia and coma supervened. All reflexes were abolished except in right big toe, where a slight flexor response persisted; death occurred April 25th; no autopsy.

The initial lesion was probably in the anterior third of posterior limb of right internal capsule, since here the hypoglossal tract lies between that of the facial and the extremities. The second lesion must have occurred in the corresponding portion of the left internal capsule.

Case 3. C. O. B. American birth and parentage; age 57; stencil cutter; mother died at 65 from softening of brain; "was depressed and lost use of her mind, but had no delusions;" served in Civil War; had typhoid fever, with resultant fistula in ano; in September, 1897, he had an attack of apoplexy with right hemiplegia; aphasia; great difficulty in speaking and swallowing for some time; depression and frequent attacks of weeping; he improved somewhat, but in April, 1899, after a severe attack of rheumatism, mental derangement increased, had delusions of infidelity on part of wife, was unable to calculate or figure, and memory was impaired. On admission, June, 1899, delusions had abated, but memory was defective, speech was impaired, it sometimes requiring two or three minutes to recall a word. He soon developed expansive and persecutory delusions; he had money, was to be shot from a cannon, etc. Had some insight into his mental condition, saying his head feels heavy and dull; he cannot find the right word, etc. He recognized some objects held before him; he could not name others, as toothpicks, cuffs, stamps, etc., but knew their use. In five weeks he began to improve, had regained use of limbs, and was removed eight weeks later, at which time his aphasia had nearly disappeared, and he showed no marked memory defect or emotional oscillation. During an absence of a little more than two years he was able to perform some work, but eventually memory became defective, he was depressed, often wept, and the delusions of infidelity returned. Aphasia also reappeared, finding great difficulty in getting the right word and often crying over his failure. Complained of pains in body and limbs, and of various other uncomfortable feelings (hypochondria), but on the whole is cheerful. These symptoms continued during his second residence of ten months, at the end of which time he was discharged as improved.

Case 4. J. B. Male; American birth and parentage; age 57; tinner; married; no heredity; moderate drinker; at 55 gradually developed a convulsive tic of left side, extending in course of nine months to right side of face. Although working on roofs, complained of severe heat for weeks prior to onset of psychosis, which was sudden, July 27, 1900, when he had an attack of insolation. He was confused and felt badly, but was able to return home alone, although on his arrival was so dazed that he had to be led into the house. He became practically unconscious for twenty-four hours, though muttering to himself and moving about restlessly in bed. Next day recognized wife, but was incoherent, misplaced words, was irritable, sluggish and wished to be left alone. A few days later there was marked cortical motor aphasia, paraphasia and amnesia verbalis, although he "acted rationally." At first he could not understand what was said to him, but later understood but could not answer, although he knew what he wanted to say, because he could not utter the right words. Improvement by 13th day, but memory continued defective and judgment was impaired. Thence ensued gradual moroseness, suspicion and fear. Physically he presented convulsive tic, aphasia, chronic nephritis, aortic stenosis, and cardiac hypertrophy. In third month an epileptic convulsion. At sixth month delusions and fear disappeared, but was still suspicious. Epileptic seizures recurred in the seventh, ninth and tenth months, and death from apoplexy in the fifteenth month. No autopsy.

Case 5. W. H. C. American birth and parentage; age 61; painter; temperate; married three times; once divorced; an uncle died of apoplexy; had two light shocks, gradually followed by aphasia, memory defect, emotional disturbances, and threats, with olfactory and aural (noted but once) hallucinations; on admission was completely disoriented, memory was very defective for both remote and recent events, answers were incoherent, and the train of thought limited; physically he presented gradual loss of strength, lack of intestinal control, general muscular tremor, sensory and motor aphasia, partial paralysis of facial muscles and tongue (retraction tremor), increased reflexes, both superficial and deep, increased pain sense, especially on right side, incoordination, arterio-sclerosis, and one epileptiform seizure; also acute decubitus; mental and physical deterioration progressed equally and steadily and complete coma ensued thirty-six hours before death; duration of psychosis six months and twenty-one days; no autopsy.

This case was differentiated from dementia paralytica by the meagre and transitory delusions, the focal symptoms, and absence of the pupillary changes characteristic of the latter. The focal symptoms and rapid course excluded dementia senilis.

Case 6. H. S. B. Male; American birth and parentage; age 45; electrical engineer; married; had syphilis several years ago; in 1897 had an apoplectiform attack, following excessive overwork (sixteen

hours daily), with partial paralysis of right hand; following this the only difference noted was that he took less interest in outside affairs, was always over-tired, and slept from the time he came into the house until he returned to work; he was glum, reticent, and forgetful; June 1, 1901, gait gradually became unsteady, with a tendency to fall backward; these symptoms increased, but he worked until September 1, 1901, when he fell asleep and allowed water in stationary boiler to dry up; was discharged and threatened with arrest; from this date symptoms became rapidly worse; he did not know where he was, could not remember, and expressed fear. A diagnosis of dementia paralytica was made at this time, and a fatal termination predicted in five months; admitted to the Connecticut Hospital for Insane September 26, 1901; disoriented for time and place; memory impaired for both recent and remote events; judgment defective, but delusions and hallucinations absent; he was restless, apathetic, and showed little interest in his surroundings; physically he presented loss of weight, paralysis of right side of face and tongue; tremor of eyelids, tongue and fingers; dragging of left leg; exaggerated deep reflexes; incontinence of urine and faeces; pupils equal and active; staggers on arising in morning, and sometimes falls, but walks fairly during day; no real aphasia, but he sometimes hesitates for a word; in fifth month had improved mentally, but showed defective memory for many events of psychosis; one month later had an attack of articular rheumatism; in tenth month some tenderness and loss of tone in both shoulder girdles (muscles); a little over a year after his admission he was discharged as improved, although his memory for recent events was still defective.

Case 7. H. A. C. Age 48; born in America of English parents; music teacher, and later evangelist; habits very intemperate up to 26; since then abstinent; married; there is a vague history of syphilis at age of 20 to 22; father died of epilepsy due to head injury; one sister was "strange," and probably insane; while patient had shown some eccentricities, the first symptoms of mental disorder were noted in January, 1898, when he had a fainting attack on the street, but soon regained consciousness and walked home, where for a few days he was confused; he had similar seizures—one in June and two in August, 1898; from that time memory has been impaired; speech was often irrelevant, conversations abruptly terminated, and he was dull and indifferent; has done no work since January, 1900, when he partially collapsed, and began to express active delusions of persecution and fear, which persisted to the end.

On admission to hospital, January 23, 1900, he presented these symptoms: Mental—Impairment of memory for both recent and remote events; unsystematized delusions of persecution and fear (at times terror); auditory and visual hallucinations and illusions; moral and emotional deterioration, and occasional brief periods (few hours) of cheerfulness, not amounting to exaltation. Physical—Loss of flesh

and strength; right scrotal hernia; weak heart; fainting or dizzy attacks; paraesthesias of feet, ankles and genitals; Argyle-Robertson pupils; myopia; defective sense of smell (possibly a hallucination); moderate deafness; steppage gait; static ataxia; paralysis of left side of face; deviation of tongue to right; general tremors—lips, tongue, hands, feet, etc.; lively plantar reflex, of normal type; absence of cremasteric, abdominal and patellar reflexes, and occasionally of organic; insomnia; and hyperthermalgesia of right side, extending from fourth rib downward to knee in front and middle of thigh behind.

During his brief residence at hospital he grew steadily worse, and during last month had jaundice, with constipation; died March 23, 1900; autopsy sixteen hours post-mortem.

A clystic focus of old cerebral hemorrhage or thrombus, 25x7 m.m. in size, in anterior extremity of right corpus striatum, involving anterior limb of internal capsule and adjacent portions of caudate and lenticular nuclei; general arterio-sclerosis, very marked in cerebral vessels; chronic lepto-meningitis; chronic internal hemorrhagic pachymeningitis; fatty cirrhosis of liver; chronic nephritis.

Case 8. C. T. Male; married; age 55; engineer; father died at this hospital; senile dementia; syphilis denied, but had scar on penis; has had gonorrhœa, and has been addicted to sexual excesses, often illicit; in 1897 had an attack of apoplexy; unconscious for three days, right hemiplegia and aphasia; partial recovery in eight months after large doses of K. I.; one year later had a light attack with partial paralysis (exact nature not learned), and marked aphasia; improved in one week; also had a similar brief attack later on; was able to do some work, but little is known of his mental symptoms prior to admission to this hospital, June 23, 1900, when he was disoriented for time and place; memory was impaired for both remote and recent events; said he had been a detective for years; wore a badge bearing letters, N. D. B.

Physically he presented a narrow-shaped palate, arterio-sclerosis, nasal catarrh, enlarged prostate, chronic nephritis, presbyopia, impaired smell, taste, hearing, tactile and temperature senses (tests unsatisfactory, owing to dementia and inability to co-operate), impaired co-ordination, tremor of fingers; from this time to his death, June 14, 1902, the memory defect increased, delusions persisted, and at times he manifested great hatred of wife and sister; once threatened to kill a man, whom he could summon to the hospital in some unexplained way, for which he would be sent to Wethersfield, where his sister would have to visit him; once dictated a letter to sister saying if she "did not reply in a week he would kill her;" physically he suffered at times from headache, nausea, retention of urine, and suffered from acute nephritis for six weeks; aphasia persisted; in February, 1901, he had a mild apoplectic seizure, with paralysis of left arm and leg; marked Babinski phenomenon in both feet, and ankle clonus, most marked in right; and pain over right motor tract; two weeks later

he had a characteristic epileptic seizure, and another, three days prior to death, soon followed by complete coma; autopsy 4 hours p. m.; four old foci of cerebral hemorrhage or thrombosis in left hemisphere, involving (a) anterior extremity of corpus callosum, 10x10x15 m.m. and adjacent corona radiata; (b) corona radiata in posterior portion of parietal lobe; one large old hemorrhagic focus involving right external capsule, claustrum, and part of lenticular nucleus; general arterio-sclerosis, especially marked in cerebral vessels; chronic leptomeningitis; chronic nephritis.

Case 9. J. B. Male; silversmith; age 56; English; father and paternal uncle very intemperate; paternal aunt eccentric; an elder brother married a cousin and their first child was an idiot; patient moderately intemperate for about thirty years; in 1894 he had some kind of convulsive attack, falling to floor and remaining unconscious for several minutes; a similar attack occurred in August, 1899, soon after which he suddenly developed delusions of suspicion and conjugal infidelity: he left work, neglected person and dress, avoided his associates and soon developed visual and auditory hallucinations; for several years he had been suspicious and jealous of his wife, and the "voices" now made serious charges against her, so that he now accused her of improper conduct whenever he saw her conversing with any man, even his son-in-law; he was treated for "brain fever" for three weeks prior to his commitment to the Connecticut Hospital for Insane, January 27, 1900; on admission he was dull, confused and disoriented; memory was impaired for both recent and remote events, thought centered about his troubles and delusions; he had some insight, recognizing the fact that his "mind was not right," and he was incapacitated for mental or physical work. He talked with imaginary people, and said a fly had crawled through his nose into his brain and destroyed his reason; "his brain drops down and prevents him from thinking; it falls from the front of his head towards his mouth;" at this time he had no headache, nor any focal symptoms except occasional vertigo, and the paræsthesia above noted; one month later he became childish and silly in conduct and conversation, and was completely disoriented; wrote a letter to his wife, but could not remember her address; he now became ataxic and fell several times, and soon motor and sensory aphasia appeared. He misnamed articles and misplaced his words, making his voluntary speech a jargon; he could not find his way about the ward or to his bed, smeared food on his clothing, and became filthy; dementia rapidly increased; coma ensued, and death occurred two days later, after a residence of eight weeks; autopsy five hours, p. m.

Endothelioma involving inferior third of left Island of Reil, the amygdalate nucleus, and entire left T. 3, and adjacent portions of l. T. 4 and l. T. 5, with adjacent white matter.

Case 10. C. B. Female; 45 years of age; married; temperate; heredity denied; no history or evidence of syphilis or trauma; onset

of disease gradual at age of 35, following childbirth; at first she could walk a short distance, but would soon give out, fall to ground, and have to be taken home in a carriage; at age of 38 she had a "slight shock," since which she was unable to walk at all; the first mental symptom noted was great irritability on arising in morning, evidenced by cursing her husband, and "using the most horrid language;" history of disease prior to admission to Connecticut Hospital for Insane, March 12, 1900, very meager; she died July 5, 1901; it will be most convenient to describe her mental and physical symptoms separately.

Physical Symptoms: Paralysis of right face, tongue on protrusion deflected to right; pupils unequal and sluggish in reaction to light and accommodation; nystagmus; refraction could not be tested satisfactorily, owing to dementia; rotary movements of head; impaired sense of smell; vague pains in forehead, back and right leg; paræsthesia (formication) in feet and legs; coordination lost in legs and impaired in hands and arms; intention tremor in hands; tremors of lips and tongue; trepidation of legs on excitation; paralysis of both legs, with resultant atrophy; a marked Babinski reflex in each foot; marked ankle clonus on left side only; exaggerated knee jerks; slight contracture of right knee; inability to walk or stand; loss of organic reflexes; speech defect; and nephritis.

Mental Symptoms: A simple progressive mental deterioration in intellect and judgment, with absence of hallucinations, illusions and delusions; disorientation for time and place and largely for persons, emotional irritability and diminution of volitional impulse, with incapacity for mental work and marked poverty of thought; the diagnosis was organic dementia, due to multiple sclerosis of brain and cord, with a hemorrhage later in anterior portion of posterior division of the internal capsule.

Dementia paralytica was excluded by the mode of onset, slow and prolonged course (over ten years), absence of delusions, hallucinations, and profound disturbance of consciousness, and the presence of focal symptoms; 60 per cent. of demented paretics die within two years.

In cerebral tumors, the psychic symptoms depend on amount of intracranial pressure; when this is great, there are dullness, insensibility, lethargy, delusions and illusions.

In cerebral hemorrhage the first and direct results are numbness, confusion or coma, with transitory excitement and resistance; later on mind clears up and paralysis abates to some extent if life is prolonged, but the estimate of mental capacity is often difficult, owing to the interplay of aphasic and paraphasic disturbances; mental disorders are infrequent in spastic or ataxic paraplegia, syringo-myelia, and chronic myelitis; in hysteria we find seizures, convulsions, hypochondria, and very slight if any mental deterioration except in volition.

The immediate cause of death was broncho-pneumonia; autopsy refused.

Case 11. J. H. Male; age 64; married; laborer; a moderate drinker; insolation at 62, followed by disorientation for place, lasting two months; for first two days after sunstroke was dazed and wandered several miles from home; from this time memory was defective for both recent and remote events, and he later developed delusions of persecution and infidelity of wife; he was irritable when contradicted, and often scolded; he, however, was able to work steadily until October 7, 1902, but drank more than usual, but not to excess; he also had hallucinations of hearing; his mental symptoms did not change during his brief residence at this hospital (24 days).

Physically he presented no focal symptoms, but had cardiac hypertrophy and mitral regurgitation; he died suddenly December 4, 1902; no autopsy.

This case was differentiated from senile dementia by the etiology, insolation being classed with head injuries as a cause of organic dementia, and focal symptoms are not essential; it was felt that alcohol might have been a predisposing factor in the delusions of infidelity, although these are not uncommon in organic dementia.

Case 12. J. J. B. Male; married; farmer; age 69; no hereditary taint; mitral insufficiency and arterio-sclerosis since 1888; in February, 1897, he had an apoplectic attack, while feeding his pigs, followed by left hemiplegia and motor aphasia; for two weeks he could not walk at all; there was some improvement in three months, when he was able to walk, but he has never been able to manage his farm; later he had three slight attacks—the last in 1899—the first two accompanied by slight aphasia, and the last by coma for ten hours; since the fourth seizure mental deterioration progressed slowly but steadily, until October 11, 1901, when he was committed to this hospital.

Mental symptoms: Clear consciousness, with some insight into his mental incapacity; impairment of attention and memory, defective judgment in business and ordinary affairs; emotional irritability and lack of self-control, and delusions of infidelity, which led him to threaten, and once attack his wife.

Physical symptoms: Mitral insufficiency, hypertrophy of left ventricle, arterio-sclerosis, presbyopia, defective and slurring speech, tremor of eyelids, tongue and fingers; deviation of tongue to left on protrusion, extensor plantar reflex (Babinski) in left foot, moderate static ataxia, inelastic gait, chronic nephritis.

At date of writing (August 10, 1903) is still living; physically unchanged; delusions of persecution and infidelity persist.

Case 13. W. A. C. Male; laborer; single; age 35; intemperate; was always incorrigible and unmanageable, and when whipped for any of his numerous transgressions became furiously angry and repeated the same offense; he never had steady employment, would not work, was impulsive and quarrelsome; in June, 1895, he had an attack of left hemiplegia; he was unconscious for about three hours, could

not move his leg unaided for more than two weeks, nor use his arm to any extent for more than a year; in June, 1899, he is supposed to have suffered from *insolation*, after which he manifested his first symptoms of insanity, viz: suspicion, reserve, moroseness and delusions of suspicion, fear and persecution; he once attempted suicide; always easily disturbed by alcohol, he was more readily affected after his paralytic attack, and was intoxicated about once a month; has been a resident of this hospital since December 4, 1899, and has shown a slowly progressive mental deterioration in memory, thought and judgment, emotional irritability, and at times increased volitional impulse; in conduct he is reasonably neat, does simple work on the ward, is occasionally restless, profane and obscene, and often stands for hours at a time; his delusions have faded away, and he has no hallucinations.

Physically he presents today marked Babinski phenomenon in left foot, absent knee-jerks, tremor of eyelids, tongue and fingers, and some static ataxia.

Case 14. T. E. J. Male; colored; age 42; married; mother was a slave; no heredity; temperate; ran a stationary engine and was very intelligent; August 25, 1900, had an attack of apoplexy, followed by left hemiplegia; no aphasia; admitted to this hospital 23 days later. Mental symptoms: Disorientation for time and place, impaired memory, limited train of thought, aural hallucinations, visual illusions, and delusions of fear and persecution; physically he presented very slight if any impairment of left side, but the left knee-jerk was exaggerated, and there was a Babinski reflex in left foot; at present writing (August 11, 1903) delusions and hallucinations have been absent for over a year, but there are still periods of restlessness and irritability, occasional dazedness with filthy habits, and some exaltation, shown by a feeling of superiority to and authority over his fellow-patients. While mental deterioration has gradually progressed, he is still capable of performing routine ward work.

Case 15. J. F. Male; married; German; age 48; farmer; in 1899 he began to have epileptic seizures, averaging about three or four a month; lost his employment; in 1901, when he began to drink to excess, he showed a change of character and loss of memory; never any paralysis or aphasia; on admission, April 1, 1903, presented marked static ataxia, spastic gait, incoordination of facial muscles, exaggerated superficial and deep reflexes, ankle clonus, loss of tactile sensibility, paræsthesias, slurring speech, vertigo, divergent strabismus of left eye; any emotional disturbance, even a short examination, will cause a "nervous chill," every voluntary muscle being thrown into clonus; memory is markedly impaired, and thought shows poverty; consciousness is clear and there are no hallucinations, illusions or delusions.

The physical symptoms differentiate from epileptic insanity, and the seizures are considered as due to some diffuse cerebral lesion

(sclerosis) that caused the ataxia, exaggerated reflexes, etc.; no seizures have been noted during six months' residence.

Case 16. G. E. R. Male; age 65; salesman; married; no heredity; at 57 had a "slight stroke of paralysis," followed by a steady progressive mental deterioration; memory gradually became impaired, he talked constantly of the past, and was very emotional; on admission, April 6, 1903, presented static ataxia, which has increased until station and locomotion are almost impossible; amnesic aphasia; exaggerated plantar reflex; abolished sphincter reflexes; and insomnia; no hallucinations or delusions.

Differentiated from dementia senilis by age at onset, history of apoplectic seizure at 57, aphasia, etc., and absence of delusions of persecution; the memory defect is common to both psychoses.

Case 17. M. H. Female; age 51; widow; no heredity; had an apoplectic attack at 49, followed by incomplete left hemiplegia; was unconscious about one hour; from this time on, she began to deteriorate in memory and judgment, and was uncleanly in habits; since admission, June 30, 1902, has occasionally presented delusions—has money in bank, cheated by son out of vast sums of money, etc.—and shows memory defect, emotional irritability and depression, with diminution of volitional impulse.

Physically, are the residuals of left hemiplegia, exaggerated tendon reflexes, arterio-sclerosis, and mitral regurgitation.

Case 18. F. H. Male; German; age 43; molder; temperate; married; heredity unascertained; on August 14, 1899, after a few days of severe headache, he had an apoplectic attack, with probable right hemiplegia and aphasia, of which we obtained no satisfactory history; on admission (October 18, 1899) he presented the following symptoms: Physical—nasal catarrh, sluggish and unequal pupils (right larger), defective smell and hearing (in left ear); mouth drawn to left; tongue deviates to left, on protrusion; free reflexes; static ataxia, noises in head; partial insomnia; mental depression, impairment of memory and judgment, almost complete disorientation, retardation of thought and auditory hallucinations; he had been treated with iodides and mercury; in April, 1900, he had an attack of left hemiplegia; with aphasia, and dazedness lasting about seventeen days, followed by some unrest and excitement; knee-jerks exaggerated; left Babinski; in July, 1900, was sent to the infirmary, where he still remains; in February, 1901, left pupil strongly contracted; speech limited to twelve words; frequent lethargy; October 8, 1903, completely demented; cannot stand or walk; reflexes abolished.

Case 19. M. E. K. Female; age 61; married; heredity denied; temperate habits; in 1883 had an apoplectic attack with left hemiplegia; later on, exact date unknown, epileptiform seizures supervened; there has been a steady deterioration in memory, judgment and intellect, with auditory hallucinations and vague delusions; she talks with dead people as if they were alive, claims possessions she never had,

wanders about, and is an inveterate gossip; on admission, September 26, 1900, she was able to walk, but had lack of power in left arm and leg; speech not affected; plantar reflexes absent; knee-jerks lively; pupils normal.

Case 20. S. J. M. Female; age 28; married; temperate; two sisters and one brother insane; no other history of hereditary taint; onset was sudden, October 25, 1900, although she had not done any housework for four months previous on account of muscular rheumatism; at above date she became depressed; "was to be arrested, killed, punished; was wicked and depraved;" threatened suicide; memory said to be good. On admission she presented the following physical symptoms: Marked incoordination of both extremities, especially the lower; slight muscular atrophy; marked Romberg; exaggerated knee-jerks; marked intention tremor; nystagmus; pronounced speech defect; difficulty in swallowing; dull pains in sacrum and lower limbs; no pupillary disturbances; mentally she presented a gradually increasing mental deterioration, great anxiety and depression, delusions of fear, persecution and self-accusation; auditory hallucinations of a threatening character; impairment of memory, especially for recent events, and marked emotionalism.

Diagnosis: Organic dementia with lateral sclerosis of spinal cord.

Case 21. G. W. B. Male; farmer; married; age 58; no heredity; at 49 had a "shock," followed by left hemiplegia; one year later had a second "shock," and a third six months later; he claims to have had some difficulty in speech following these seizures, but no history of aphasia has been obtained; there are contractures of left shoulder, elbow, wrist, fingers, hip, knee and ankle; has arterio-sclerosis, and double cataract; memory good for both recent and remote events, but thought shows circumstantiality, he is irritable and untidy, and is slowly deteriorating; has thus far presented no delusions or hallucinations.

Case 22. W. C. M. Male; age 65; English; married three times; cabinet-maker; temperate; a cousin was insane; at 60 received blow on head, was unconscious for two hours, and ill for a month; one year later began to have "convulsions," which recurred at irregular intervals; unable to work for past three years, and there has been a progressive mental deterioration, especially in memory, with expansive delusions; hid everything he could get, could not find his way home, etc.; coordination impaired, movements purposeless, gait ataxic, and there was amnesic aphasia, which developed gradually; reflexes sluggish and variable, but not abolished.

On admission, December 20, 1900, he presented in addition to above, mitral insufficiency, arterio-sclerosis, arcus senilis, chronic nephritis; he was disoriented, had visual and auditory hallucinations and delusions of ownership; deteriorated rapidly and died June 23, 1901; no autopsy.

This case was differentiated from senile dementia by the etiology

(blow on head), aphasia, and prominence of visual and auditory hallucinations and the presence of seizures.

Case 23. E. N. Male; age 42; married; butcher; intemperate; drank beer and wine; a small quantity affected him; grandmother had three apoplectic seizures; insane after last one; December 17, 1901, had an apoplectic seizure with right hemiplegia; coma lasting three days, and aphasia for about six months; in August, 1902, he developed delusions of infidelity; charged wife with congress with 75 men in one night; tried to kill her, and threatened to shoot himself; aural hallucinations present; on admission, September 13, 1902, he presented partial right hemiplegia, amnesic aphasia, exaggerated knee-jerks, ankle clonus on right side, moderate memory defect and persistent but unsystematized delusions of infidelity.

Case 24. H. E. N. Female; age 62; single; mother had melancholia; onset gradual at 57; first symptom noted was a loss of memory for names; she could not pronounce names of persons or objects, but knew them, would write on slips of paper, to which she would refer; this increased, until at her admission, October 5, 1901, her vocabulary was extremely meager, consisting mostly of innumerable repetitions of "mercy, I can't fasten it"; occasionally sang two lines of "Sweet By and By;" she was completely confused, did not recognize anyone, could not tell where her bed was, etc.; she could do no work except occasionally a little sewing; she was extremely restless, never keeping still when awake; sleep was unimpaired; she would fill her mouth with food and try to talk at the same time; she was talking almost incessantly; she was able after many trials to arrange the squares of a bed quilt so that colors matched; this and her few phrases constituted her entire mental furnishing, and she cannot assimilate new impressions; she could not care for her person or attire; she died 46 days after admission; no autopsy.

This case was differentiated from senile dementia by age at onset and the aphasia, and the absence of hallucinations and persecutory delusions.

Case 25. C. P. R. Male; age 65 (?); no history obtained; on admission, July 2, 1901, he presented arterio-sclerosis, arcus-senilis, right hemiplegia, anorexia, and insomnia; co-ordination greatly impaired, gait weak and shuffling, speech husky and indistinct, reflexes diminished, and knee-jerks absent; he was confused, disoriented, and dazed; could give no account of his life, was depressed and restless, and presented neither hallucinations nor delusions; died eight days after admission; no autopsy.

Case 26. I. R. Female; age 60; no family or personal history obtained; on admission, August 2, 1901, she presented residuals of right hemiplegia, exaggerated knee-jerks, impaired plantar reflex, inequality of pupils. Mental symptoms: Clouding of consciousness, complete disorientation, incoherence, very defective memory, and auditory hallucinations; at present (October 5, 1903) presents little change from

above; pushes a floor polisher, and walks out daily; confusion and hallucinations persist.

Case 27. E. R. Female; age 33; divorced; father insane for some years previous to his death at 37; after a period of depression, lasting about four years, she shot her mother and then herself in the head; she had repeatedly contemplated suicide, but the shooting of her mother was due to a comparatively sudden impulse. On admission, April 29, 1902, she presented the following symptoms: Almost complete ptosis of left eyelid, extreme dilatation of left pupil, paralysis of all the muscles of left eye except external rectus, right deviation of tongue, incomplete paralysis of same, incomplete paralysis of muscles of right fauces, complete motor paralysis of right side, and sensory paralysis of same except in vicinity of large joints; loss of temperature, sense of right side, diminished knee-jerks, Babinski sign, and aphasia. Mental symptoms: Partial disorientation, defective memory for both recent and remote events, amnesia of certain words, slow and difficult but fairly coherent thought, impaired judgment, emotional irritability, moral obtuseness, and progressive mental deterioration; no hallucinations or delusions elicited; December 9, 1902, right hand flexed and rotated outwardly to the extreme; forearm extended; contraction can be easily reduced almost completely when her attention is distracted; otherwise it causes severe pain; leg is flexed at 90° on thigh; right knee-jerk increased, and there is right ankle clonus.

Case 28. B. R. Male; age 53; druggist; single; temperate for last ten years; apoplectic attack July 23, 1901, with right hemiplegia and aphasia; in bed two months: was restless, irritable, with impaired memory and intellect; no hallucinations or delusions elicited; admitted December 24, 1901, discharged, stationary, June 25, 1903; while at the hospital, he presented motor aphasia, word blindness, agraphic and alexia, partial paralysis of right arm and hand, exaggerated knee-jerks, tremor of tongue and extended fingers, deviation of tongue to right; station and locomotion fairly good; memory is defective and he is emotionally depressed, crying readily.

Case 29. E. R. (2) Female; age 63; widow; mother died of apoplexy; patient had incomplete left hemiplegia in 1895, and a second attack in 1898, since when mind has steadily deteriorated. On admission, July 25, 1902, presented aural hallucinations, complete disorientation, defective memory and judgment, diminished emotional and volitional irritability, with occasional fear. Physical symptoms: Arterio-sclerosis, chronic nephritis, exaggerated deep and superficial reflexes, especially on left side, ataxic gait, tremor of tongue, lips and fingers; October 8, 1903, a steady deterioration in memory, intellect, judgment and emotions; leads practically a vegetative existence.

Case 30. R. C. L. Male; married; age 66; temperate; a paternal greataunt was "queer;" no other history of heredity; at 59 had an attack of left hemiplegia, and a second attack seven years later; after the first attack could not speak for two days, was in bed for

three months, then walked with crutches for four weeks, with two canes for six years, and with one cane only, since; the onset of deterioration was very gradual, patient being fairly able to work for about four years; since second "shock" has had aural hallucinations, delusions of infidelity and persecution—his wife was unfaithful, his maid had illicit relations with his best neighbors, his dearest friends were wronging him, etc.; he has shown marked emotional instability (depression, tears, etc.), and defective memory.

On admission to this hospital, May 7, 1902, he presented these physical symptoms: Arterio-sclerosis; impaired co-ordination, arcus senilis; moderate anæsthesia of left side (points 4-6 m.m. more than on right side); gait inelastic, left heel not touching floor; static ataxia; active Babinski phenomenon on left foot; left knee-jerk exaggerated, tests often producing marked clonus of thigh and leg; moderate atrophy of muscles of left leg; tremor of eyelids, tongue and fingers; aphasia; mental symptoms same as before admission, with more marked emotional changes (crying, laughing, contentment and occasional apathy).

At this writing (November 28, 1903) deterioration is advancing rapidly, and he is quite uncleanly, while delusions are fading.

Case 31. M. W. Female; age 70; married; at age of 56 was "nervous," impulsive, and morbidly religious, and was treated at home, recovering after two years; eighteen months ago had an attack of right hemiplegia, followed by gradual mental deterioration, defective memory for recent events, visual hallucinations, and great emotional irritability (suspicion and fear); thought she would come to want; on admission, May 22, 1900, she was disoriented for time and place, in addition to above symptoms; physically she presented right hemiplegia, without aphasia, inability to walk or stand, impaired sensation in right leg and arm, marked Babinski in right foot, and arterio-sclerosis. December 27, 1900, while sitting up to eat supper fell back unconscious, and died within five minutes; no autopsy.

This case was differentiated from senile dementia, notwithstanding the age at onset (68) by the absence of any symptoms of deterioration previous to the attack of hemiplegia, and the persistence of the focal symptoms.

Case 32. W. V. W. Male; age 57; physician; married; temperate; one cousin insane; at 53 contracted syphilis while attending a case of labor; on April 3, 1902, had some difficulty of speech for a few hours, and could not be understood; July 3rd memory lapsed, and could not recall any events of preceding day; during these three months he worried about his condition, thought he would not recover, and was depressed; forgetfulness increased, but he attended to his practice up to September 21, 1902, on which day he became paralyzed on right side of body and left side of face.

For a short time in October he had visual and aural hallucinations, was completely disoriented, attention wandered, memory was very

defective, he had transitory delusions of infidelity, and increased emotional irritability; he had suffered from neuralgia, dizziness, insomnia, and for two days from retention of urine; on admission, October 21, 1902, he presented diminished sensibility over right side of face and right leg, impaired coordination, station and locomotion, slow, shuffling gait, partial paralysis of right leg, arm and face; motor and amnesic aphasia; tremor of tongue, eyelids and fingers; impaired smell and taste; chronic nephritis; neuralgia, especially at night, in neck and elsewhere; memory was very defective and consciousness clouded; his physical and mental condition had improved somewhat, when, on January 24th, he had another attack of right hemiplegia, with slight speech defect and slight ptosis of right lid, but without unconsciousness; marked improvement in four days.

Another slight shock February 5; May 5th, reads, takes exercise, from time to time suggests causes of his trouble, gummata, blows on the head, etc.; still entertains transitory delusions of infidelity; often weeps.

Case 33. J. L. Female; Dane; age 48; married; temperate; no heredity; from January 15 to March 15, 1902, suffered from "stomach trouble," and for three days during that time was absolutely deaf; July 2, 1902, had an apoplectic attack, with paralysis of left face and arm, speech not affected, but patient was absolutely deaf; she recovered power of motion in thirty minutes; did not sleep for three days, was very restless, wandered about; and developed delusions that she "was not married, was to marry a young man, the food was bad, every one would hurt her," etc.; talked of suicide; the fear and delusions, except in regard to food, disappeared in four days; no hallucinations at any time; thought showed limitation, there was marked depression, volitional impulse was diminished, and memory showed only slight impairment; admitted to hospital, August 2, 1902; at the staff meeting, August 11, 1902, the writer explained the temporary paralysis by "a cortical lesion, and attributed the total deafness to a lesion of both temporal gyri; the temporary deafness could not be explained."

Death occurred March 19, 1903; autopsy, one and one-half hours post-mortem.

Anatomical diagnosis: Tumor of dura, 1 c.m. in diameter, over left posterior parietal fissure; embolism resulting in degeneration of both temporal lobes (right T and T 2; extending deeply into sub-cortical area; left T and T 2, involving only cortex); chronic valvular endocarditis (stenosis of mitral, tricuspid and aortic valves) by hypertrophy of right ventricle; acute dilatation of all chambers.

Embolism and thrombosis of branch of mesenteric artery; acute peritonitis; ascites; hydrothoracic; hydropicardium; general anasarca; chronic pleuritis and pericarditis; passive congestion of liver; old infarcts of spleen and kidneys; cholelithiasis; chronic cholecystitis.

Case 34. S. L. Female; age 61; widow; temperate; heredity de-

nied; always eccentric; had not spoken to brother for twenty-one years; onset of psychosis gradual, after a blow on forehead from falling downstairs; did not lose consciousness, but was dazed for remainder of day; soon memory defect appeared, thought centered on early life, there was mental dullness, carelessness in care of household and person, and after two years aural hallucinations and delusions of ownership, with increased emotional irritability; on admission, December 11, 1902, in addition to above, there was complete disorientation; physically there was incomplete left hemiplegia, flattening of left side of face, deviation of tongue to left, general muscular tremor; right knee-jerk diminished, left exaggerated, incoordination in both extremities, static ataxia, chronic nephritis; death April 27, 1903.

Autopsy. Anatomical diagnosis: General cerebral atrophy, chronic leptomeningitis, hydrocephalus, evacuo, granulations of ventricles.

Case 35. W. S. Male; German; age 57; married; laborer; father died of paralysis, mother of phthisis; a sister is epileptic and imbecile; at age of 27 had a "sunstroke," was unconscious for some time, and remained in a hospital three months; since has been of a roving disposition and unable to apply himself to any one line of work for any length of time; psychosis of insidious onset; when admitted to hospital, November 5, 1902, presented following symptoms: Defective memory for recent events, inability to perform mental and physical work satisfactorily; hallucinations of sight and hearing, delusions of persecution; emotional deterioration, and apathy with periods of unrest; there was absence of voluntary speech, and evident poverty of thought, with indifference to his surroundings; he was disoriented on all points; physically he presented slight arterio-sclerosis; mitral disease; emphysema of lungs, chronic nephritis, occasional vertigo, shuffling gait (toes dragging, more so in right foot; unequal knee-jerks, left exaggerated; tremor of eyelids and fingers; no speech defect; no gastric symptoms until June 7, 1903, when he vomited; this, with his cough, continued at intervals until his death three days later; temperature a trifle sub-normal ($97.4-98^{\circ}$); autopsy 13½ hours post-mortem.

Anatomical diagnosis: Carcinoma of stomach, at pylorus; secondary carcinoma of liver; mural thrombosis of heart, chronic mitral and aortic endocarditis, aortic sclerosis, chronic perinephritis, marked general cerebral atrophy, hydrocephalus evacuo; cysts of choroid.

Case 36. J. S. Female; age 60; colored; single; cook; temperate; father suffered from three attacks of cerebral hemorrhage, the last fatal; a brother is epileptic; patient had two apoplectic attacks with left hemiplegia on April 30 and May 3, 1901; unconscious each time for about an hour; immediately afterward developed mental symptoms, impairment of memory and judgment, occasional emotional irritability, auditory hallucinations and depressive delusions—relatives were sick or dying; consciousness clear, but partial disorientation for time; physically she presented paræsthesia of face and head, occasional vertigo, diminished power in left arm and leg, and sluggish

knee-jerks; during her residence of eighteen months at this hospital she was able to move about and perform simple ward work for one hour daily.

Case 37. M. L. R. Female; married; age 62; heredity denied; admitted to this hospital November 8, 1902, with a history of a "shock" five years previous, since which time she has had visual and aural hallucinations, vague hypochondriacal delusions, marked memory defect, inability to work, some clouding of consciousness, and defective judgment; in winter of 1902-3 she had a second apoplectic attack with left hemiplegia, slurring, hesitating speech, ataxic gait, great unrest, dullness and untidiness, aural hallucinations, time disorientation, poverty and incoherence of thought, constant feeling of fear, and great energy due to decrease of volitional impulse.

Physically: Paresis of left face, increase of left knee-jerk; muscular tremor of upper extremities, face and head (rotary), increased on effort, and slurring, hesitating speech; marked constipation; three months before her death, on August 12, 1903, she had another attack of complete right hemiplegia, complete motor aphasia, and extreme constipation; no autopsy.

Case 38. A. O. Female; age 39; married; heredity denied; December 26, 1900, was injured by railroad collision, losing right arm, and receiving fracture of right leg, and a bruise on right side of head; on recovery worried over her disability; in September, 1901, suffered from right hemicrania, constipation, vomiting and insomnia, with paresis of right face, and light ptosis; after four weeks had an attack of right hemiplegia, after which she was noisy and restless for several days; on July 7, 1902, she suddenly lost the use of her left arm and partially of left leg; tongue deviated to left, and left side of face drooped slightly; gait elastic, knee-jerks exaggerated; was restless and hard to manage, but not as noisy as after previous attack; at this time a diagnosis of cerebral syphilis was made, and paralysis improved under iodide. After her return from the local hospital, she was often noisy, profane, abusive, restless, threatening, and violent; ran about the streets at all hours in a half-nude condition, and expressed the delusion that some one wished to kill her (fear); admitted to this hospital December 8, 1902; while here she manifested delusions of infidelity and persecution without hallucinations, slightly impaired memory, emotional irritability, and fear, and at times threats and assaults; discharged July 6, 1903.

Case 39. H. J. M. Male; age 29; single; a moderate drinker; heredity denied; November 8, 1902, fell downstairs and was supposed to have sustained a fracture at base of skull, blood issuing from nose and left ear; he was comatose for three days, and more or less dazed and disoriented for about three weeks; he had incontinence of urine and feces, and frequent vertigo; there was hemi- or paraplegia, but a slight paresis of facial muscles on left side; about two months after

the injury he went to work in a gun factory, but was unable to give satisfaction and was discharged after a trial of four months.

On admission to this hospital, October 6, 1903, he heard "voices" swearing, and reviling him; consciousness was clear, memory showed but slight defect, thought was incoherent, and volition normal; he exhibited no delusions, but was dull and apathetic for about four weeks; at this writing (November 26, 1903) he has shown some improvement; is more animated, does some work on ward, and expresses a desire to go home and earn his living.

This case was differentiated from traumatic neurosis by the sudden onset, absence of the characteristic despondency, hypochondriacal ideas, sluggishness of thought, centering chiefly upon the accident; forebodings of the future, etc., and presence of mental deterioration.

Case 40. F. S. Male; married; age unknown—apparently about 40; nothing learned of his history except that in April, 1903, he was kicked by a horse immediately back of left ear, causing a fracture; on admission to this hospital, July 6, 1903, he presented these physical symptoms: Asymmetry of skull, face, ears, palate; peripheral facial palsy (left); tremor of tongue and fingers; and sub-cortical aphasia.

Mental symptoms: Complete disorientation; impaired memory; paralysis of thought; incapacity for work; delusions of persecution, and on one occasion only, of expansion; diminution of volitional impulse; moderate depression without any marked emotional oscillations, and absence of hallucinations; he has complete amnesia of events during past five years, including his accident, etc.; he answers simple questions and obeys simple orders, but his voluntary speech is a jumble of English and German which no one can understand; at this writing (November 26, 1903) he has improved physically and the paralysis has nearly disappeared, although he cannot close the left eye separately—the right closing at the same time—but when eyes are closed he can open either separately; there is no improvement in the aphasia; he cannot name familiar objects (keys, watch, etc.), but describes their uses by signs; he is still disoriented for time and place, but recognizes differences in persons, although he cannot remember their names; he is now free from delusions, and is very cheerful and contented; he has expressed no desire to see or write to his wife, and cannot tell us where she is.

This case is differentiated from traumatic neurosis, the same as case 39.

Case 41. E. R. Female; age 63; widow; mother died of apoplexy at 78; at age of 56 patient had an attack of incomplete left hemiplegia, entirely regained use of side, but deteriorated mentally; three years later a second attack of incomplete left hemiplegia followed by more pronounced deterioration, more marked during past years; she had aural hallucinations, delusions of reference (people talked and laughed about her), imagined deceased relatives and friends were still

living, was extremely emotional, laughing and crying alternately, and displayed defective judgment in every-day affairs, e. g., making coffee with kerosene; memory greatly impaired, especially for recent events; since her admission to this hospital, July 25, 1902, hallucinations and delusions have abated, she has been disoriented for time, place and person, memory is so defective that at times she is unable to remember her own name; thought is limited and incoherent; she is irritable and rather despondent, has occasionally shown fear, and has lacked energy; there has been no recurrence of hemiplegia, and she walks about the ward; her gait is slightly ataxic, movements are slow, and the knee-jerks are exaggerated, especially on left side; tongue deviates to left on protrusion, and left pupil is slightly contracted.

Case 42. A. R. Male; age 49; laborer; married; temperate; one sister has congenital right hemiplegia; onset sudden in April, 1903, when "he fell to floor and shook all over; he seemed to realize what was happening about him, but could not speak, and was dazed throughout the day;" unable to use his legs for about one week, gradually improved, and was soon about; has since suffered two similar attacks, in May, and one two weeks prior to his admission to this hospital, June 17, 1903; after each attack lost use of lower limbs for about a week; almost coincident with the first "seizure" he developed delusions of infidelity on part of wife, mistook ordinary noises for signals, and in reaction to these delusions was at times restless, excited, noisy, and threatening to injure wife; at times claimed to hear men talking to wife from the outside; memory slightly impaired, especially for recent events; he is disoriented for place and person, cannot fix his attention, seldom speaks voluntarily, and replies to questions are often short and desultory; he has some insight, saying, "my head is weak; it feels like a mop," at same time pointing to right parietal region and rubbing his head as if it were devoid of sensation; he shows moderate despondency and indifference, but often laughs in a silly manner; at times he denies delusions of infidelity, and again admits them.

Physically he presents opacities of both corneas, impaired vision, coarse tremor of tongue; slight arterio-sclerosis, chronic nephritis, large right scrotal hernia.

Case 43. E. L. Female; age 67; married; heredity denied; at age of 65 had an attack of left hemiplegia and was helpless for about three months, after which she gradually improved and was able to walk about and partially care for herself; there gradually appeared an increasing difficulty of application, childishness in actions and manner, impairment of memory, disorientation for place, and filthy habits; admitted to this hospital August 10, 1903; mental deterioration very marked—complete disorientation, almost complete loss of memory, marked paralysis of thought, vocabulary limited to monotonous repetitions of incomplete phrases, diminution of volitional impulse and emotional irritability, and some unrest; no hallucinations

or delusions have been noted; physically she presents no residuals of hemiplegia, except inequality and sluggish reaction of pupils.

Case 44. D. A. M. Female; age 74; widow; heredity denied; at 66 had what was evidently an attack of left hemiplegia, with a possible second attack at 72; a satisfactory history has not been obtained; on admission to this hospital, on September 28, 1903, she presented illusions of hearing, disorientation for time, impaired memory, desultoriness and poverty of thought; delusions of persecution and suspicions, as well as of great wealth; she accuses her daughter and niece of illicit sexual relations, of stealing her clothing, treating her like a slave, etc.; she presents increased emotional irritability; depression predominating, with occasional fear, anger and tears; there is diminution of volitional impulse. Physical symptoms: Defective smell and taste; paresis of left foot shown in gait by dragging of toes; exaggerated knee-jerks, especially the left; ankle clonus on each side—the left exhaustible; deviation of tongue to left and slight flattening of left face.

Case 45. H. S. Canadian woman; age 68; married; no heredity; in 1898 had apoplexy with right hemiplegia; regained use of leg, but never of arm; since 1899 has been unable to stand or walk; on admission, May 8, 1903, presented incomplete right hemiplegia, atrophy of muscles of both legs, partial ankylosis of both knee joints, tremor of upper extremities, diminished knee-jerks, double cataract and motor aphasia.

Mental symptoms: Complete disorientation, defective memory, poverty of thought, emotional deterioration, and impaired judgment, but no hallucinations or delusions. Died July 15, 1903; no autopsy.

Case 46. E. C. Female; age 60; widow; heredity denied; at age of 58 had an attack of left hemiplegia, followed by a gradually increasing condition of mental deterioration, accompanied by auditory hallucinations, depression, fear and delusions of suspicion, persecution, and self-accusations, with marked psycho-motor unrest (wringing hands, groaning, etc.); she expressed an extreme dislike for children, and threatened to kill two of them; on admission, July 5, 1900, she presented defective memory, in addition to above.

Physical symptoms: Residuals of left hemiplegia; deviation of tongue; partial obliteration of left naso-labial fold; fluttering of left side of face; elevation of right corner of mouth; exaggerated knee-jerks; she had some insight—"something is wrong with my head;" during her residence of over three years she steadily deteriorated, fear, depression, agitation persisted, and aural hallucinations and persecutory delusions were more or less prominent; about two weeks before her death (August 16, 1903) there was partial paralysis of right face, and complete coma during the last day; autopsy 14 hours post-mortem.

Old focus of cerebral hemorrhage or thrombosis involving right internal capsule, and adjacent portion of lenticular nucleus, including

entire putamen; old focus of thrombosis involving cortex and sub-jacent white matter of right posterior parietal convolutions and adjacent angular gyrus; marked general cerebral atrophy with hydrocephalus evacuo, general arterio-sclerosis, especially marked in brain.

Case 47. T. R. S. Male; single; painter; a moderate drinker; no heredity; at age of 58 had what was called an epileptiform seizure by nephew and a "shock" by sister; has since had about six of these seizures, during which he lost consciousness, fell to the ground, and was generally convulsed; he worked until November 27, 1901, when mental symptoms appeared suddenly; impairment of memory and intellect, outbreaks of irritability, profanity and loquacity, with intervals of composure; he was completely disoriented; on admission to this hospital, February 4, 1902, he presented extremely defective memory for both remote and recent events, marked clouding of consciousness, poverty of thought, emotional indifference and energy, with absence of hallucinations and delusions; pupils were equal and reacted to light and accommodation within narrow limits; coordination normal; gait and station feeble; gelatinous tremor of tongue; coarse tremor of face, lips and hands; speech tremulous; while here he had three epileptiform attacks, the last, on day before his death, being characterized by almost constant convulsions, mostly of left side, tongue and eyes deviating to left side; this attack was followed by incomplete coma, and death occurred October 2, 1902.

Autopsy: Multiple old hemorrhagic foci of brain, involving (a) left caudate nucleus extensively, also internal capsule and small areas in globus pallidus and putamen; (b) corona radiata beneath R. T. 2; (c) corona radiata beneath right superior parietal, extensively; (d) corona radiata beneath left angular gyrus to small extent; general atrophy of brain; general arterio-sclerosis, especially of vessels of brain; chronic ependymitis.

Case 48. A. S. Female; age 68; widow; heredity denied; at 66 had a "shock" and was helpless and confined to bed for four weeks; from this time memory gradually deteriorated, she did not finish work, leaving for something else; was irritable and careless in habits; in May, 1903, she became restless, somewhat elated, irrelevant in speech, developed persecutory and expansive delusions, and endeavored to secure an ax to use on her son and his wife, to avenge her wrongs; on admission to this hospital, June 22, 1903, she was restless, resistless, noisy, unruly, destructive, disorderly, and removed clothing; she manifested fragmentary delusions of persecution and possession, paresis of thought, increased emotional irritability and volitional impulse; was completely disoriented, and memory was lost; she refused food and medicine; died July 6, 1903.

Autopsy: Old focus of cerebral hemorrhage or thrombosis involving right globus pallidus and adjacent portion of internal capsule; general cerebral atrophy with hydrocephalus evacuo; cysts of cho-roid plexus; general arterio-sclerosis.

Case 49. G. C. Male; married; age 64; very intemperate since boyhood, and served several sentences in jail; brother a vagrant; no family history obtained; in August, 1898, after a prolonged debauch, he exhibited "failing memory, confusion of ideas, unintelligible conversation, was quiet and peaceful, destructive and filthy, and insecure on his feet;" "could not understand what he heard, was demented, feeble, and bewildered;" on admission, October 5, 1898, presented sensory aphasia and locomotor incoordination; memory markedly impaired; cannot give his surname; he would never write, and his aphasia was determined wholly by his speech; during his residence he showed bronzing of skin, impaired vision, general hyperæsthesia, diminished knee-jerks and gangrene of toes; no hallucinations, delusions or emotional oscillations were noted, and there was simply increasing dementia up to his death, June 24, 1900.

Autopsy: Complete degeneration of posterior half of left temporal and whole left occipital lobe, due to old cerebral thrombosis; a similar small area on right side, involving only cortex adjacent to calcarine fissure; general arterio-sclerosis.

Case 50. J. W. K. Male; age 77; widower; blacksmith; father died of apoplexy; severe headache for last fifteen years; seven years ago he became suddenly blind after a very severe neuralgia, and a diagnosis of cerebral tumor was made; two years later fell downstairs and for several weeks was in a delirious stupor; mental symptoms began with the blindness, impairment of memory, confusion and restlessness, with intervals of composure; he threatened suicide, had outbreaks of violence and destructiveness, delusions of fear and persecution, and auditory and visual hallucinations; mental deterioration advanced slowly but steadily, and he died February 6, 1901.

Autopsy: Multiple foci of old cerebral thrombosis, involving: (a) large area on tip of left frontal lobe and adjacent portion of orbital surface, and olfactory and optic nerves; (b) small area at tip of right frontal lobe; (c) many small areas scattered over cortex; general atrophy, hydrocephalus evacuus; general arterio-sclerosis.

Case 51. D. S. Male; age 56; single; laborer; intemperate; repeatedly arrested for being drunk and disorderly; no history of heredity; after eighteen months before admission to this hospital, July 8, 1896, he developed delusions of persecution and suspicion with fear; two years later he was confused, and dazed, and memory was impaired, while delusions persisted; was very untidy; physically he presented ataxic gait and exaggerated knee-jerks; ataxia and incoordination increased; he failed gradually, and died July 3, 1900.

Autopsy: Old focus of cerebral hemorrhage, involving posterior third of R. F. 3 and adjacent parts of R. F. 2, and ascending frontal convolution, extending deeply into corona; general cerebral atrophy; hydrocephalus evacuus; chronic leptomeningitis; general arterio-sclerosis.

Case 52. W. P. J. Male; age 32; married; laborer; intemperate; heredity denied; meager history; sudden onset in 1888, with supposed delirium tremens; when delirium subsided mental deterioration was found to be marked; lower limbs partially paralyzed and vision impaired; in April, 1888, brain tumor diagnosed; admitted to this hospital May 23, 1888, and died May 28, 1902; at first he had little control of hands and arms, was unable to feed himself and locomotion was difficult; these symptoms improved in three months, but soon epileptiform seizures developed, which occurred at irregular intervals for the rest of his life; convulsions always began in right hand and extended over entire right side; no hallucinations or delusions were ever noted, but memory and judgment were impaired; he was at times irritable, again indifferent or morose, and occasionally refused food.

Autopsy: Multiple foci of old cortical thrombosis; one, each 2x2 c. m. symmetrically placed at anterior extremity of gyrus rectus of each hemisphere; general cerebral atrophy; hydrocephalus evacuus, and tuberculosis.

Case 53. R. H. Male; age 78; married; farmer; heredity; case diagnosed as dementia senilis. Mental symptoms: Clouded consciousness, memory defect, especially for recent events; incoherence of thought; weak, persecutory delusions; apathy irritability, restlessness, destructiveness, and filthy habits. Physical symptoms: Arterio-sclerosis, presbyopia, general muscular tremor, exaggerated knee-jerks, thick lisping and tremulous speech. Onset at 77; admitted to this hospital December 26, 1902; died August 16, 1903.

Autopsy: Multiple foci of cerebral thrombosis and hemorrhage, involving: (a) middle third of cortex of left ascending parietal convolution; (b) corona radiata beneath I. T. 1 junction of anterior and middle third; (c) portion of internal side of right caudate nucleus; (d) one-half of left pulvinar (posterior); (e) cortical portion of left cuneate convolution adjoining parieto-occipital fissure; general cerebral atrophy with hydrocephalus evacuus; general arterio-sclerosis.

Case 54. L. H. Male; age 52; married; heredity not ascertained; history very meager; had an apoplectic seizure December 9, 1897, with partial right hemiplegia and probably aphasia; admitted to this hospital December 28, 1897, and died February 12, 1899; while here he displayed impaired memory; delusions of suspicion and persecution, and emotional irritability, and fear; twice made dangerous assaults on attendants; spent most of his time in his room reading the Bible.

Autopsy: Multiple foci of old cerebral hemorrhage of thrombosis in (a) left optic thalamus; (b) left lobus clivus of cerebellum; general cerebral atrophy; hydrocephalus; evacuus; granulations of ventricles; general arterio-sclerosis.

Case 55. E. J. H. Female; age 70; widow; heredity denied; at age of 68 had an attack of right hemiplegia with motor aphasia; on admission to this hospital the paralysis had materially abated, but she could not walk without assistance on account of an intra-capsular fracture

of right femur, sustained several months before the apoplectic seizure; mentally she manifested deterioration of intellect, memory and judgment, complete disorientation, considerable unrest, and some emotional irritability; she could not make her wants known, asked for her mother, often referred to herself as a little child, and twice announced that she was about to give birth to twins; no further delusions noted, and no hallucinations were ever present; died about eight months after the onset; no autopsy.

Case 56. J. W. Male; married; age 56; lawyer, intemperate; heredity denied; from 1875 to 1890 he was subject to epileptic seizures (grand mal); since has had occasional attacks of petit mal only; he was able to attend to business, however, up to June 24, 1900, when he had an apoplectic seizure with incomplete right hemiplegia; mental deterioration rapidly ensued; he became restless, uneasy, disorderly, and violent if opposed; memory and judgment seriously impaired; there was marked aphasia (motor) and he was completely disoriented; during his six months' residence at the hospital no delusions or hallucinations were noted; was removed on trial January 5, 1901.

Case 57. S. F. Female; widow; age 72; heredity denied; onset four months prior to admission, sudden, following an apoplectic stroke, which was succeeded by two other seizures at intervals of a few days, and three months respectively; there was no aphasia or hemiplegia, but patient could not walk without assistance; the deep reflexes were diminished, and there was tremor of the hands; she also presented mitral and aortic stenosis and dilatation of both ventricles. Mental symptoms: Periodical excitements when she was noisy, loquacious, restless, requiring several people to control her; visual and auditory hallucinations; pronounced memory defect; emotional instability and delusions of persecution and fear.

In making the diagnosis, senile dementia was excluded, notwithstanding the age at onset, by the history of the apoplectic seizures, and the absence of the characteristic senile deterioration prior thereto.

Death occurred at the end of seven months, from valvular disease of the heart; no autopsy.

Case 58. J. G. Male; married; age 80; heredity denied; a steady drinker for about thirty years, and often intoxicated; showed no mental deterioration until an apoplectiform attack, July 10, 1899, which was followed by progressive deterioration of intellect and memory, incoherence and poverty of thought, vague delusions of fear and persecution, visual and auditory hallucinations, and psycho-motor unrest.

Physically: Ataxic gait, slow and clumsy movements, tremor of fingers and tongue, mitral stenosis, and arterio-sclerosis, with chronic nephritis. Death at end of nine months; differentiated from senile dementia for same reasons as in case 57; no autopsy.

ANALYSIS OF CASES.

From the beginning to September 30, 1898, ninety-six cases of organic dementia were admitted, or 1.13% of total admissions. The fifty-eight cases now reported constitute 2.68% of the admissions. The percentage of cases to admissions from the beginning, 1867, to October 1, 1903, was 1.45. The increased percentage during the last five years is interesting. It may be due to the fact that more cases of brain lesion are accompanied by psychoses, that there is a greater tendency to send such cases to the hospital, or that more accurate methods of examination and diagnosis are available. A similar increase of cases of dementia paralytica also occurred, as shown by the following table showing percentage of cases to admission:

	1867 to Sept. 3, 1898.	Oct. 1, 1898, to Sept. 30, 1903.
Organic dementia	1.13	2.68
Dementia paralytica	2.83	5.87

The total percentage from 1867 to September 1, 1903, was, organic dementia, 1.45; dementia paralytica, 3.05. In nine years nearly three per cent of the admissions at Morningside were cases of organic dementia.⁹

Movement of cases.

Total cases since Oct. 1, 1898	58
Still in hospital	19
Discharged	7
Died	32

Of those still here two cases are improving, viz., cases 39 and 40. Of those discharged four were improved and three were stationary.

Autopsies were made on fifteen cases, besides one case diagnosed as organic dementia, which proved to be dementia paralytica.

I. GENERAL STATISTICS.

Sex: Thirty-five patients were male, and 23 were female.

Civil Condition: Twenty-nine men were married or widowed, and 6 were single. Of the women, 21 were married, widowed or divorced (one), and two were single. One man had been married three times. In one case it is not known whether the patient (female) was married or single. If more extensive

records should sustain this ratio of married to single, viz., 86.2% married to 13.8% single, married life must be considered as a very powerful etiological factor.

Age: The age of patients on admission was as follows:

	M.	F.		M.	F.
28 to 30.....	1	1	50 to 60.....	11	2
30 to 40.....	2	2	60 to 70.....	9	12
40 to 50.....	9	2	70 to 80.....	3	4

From 28 to 50 there were twelve men and five women; from 50 to 66 there were 19 men and 11 women; and above 66, four men and seven women. Thus more than half the cases occurred between 50 and 66; in other words, after the period of involution had become well established. After 66 the prospect favors senile rather than organic dementia.

DURATION OF DISEASE.

A. In those who died:

Under 1 year.....	3
Between 1 and 2 years.....	5
Between 2 and 3 years.....	8
Between 3 and 4 years.....	3
Between 5 and 6 years.....	4
Between 6 and 7 years.....	3
Between 7 and 8 years.....	1
Between 8 and 9 years.....	1
Between 11 and 12 years.....	1
Between 14 and 15 years.....	1
30 years	1
Unknown	1

32

One-half the deaths occurred within three years, and nearly one-third more in three to seven years. Twenty-six deaths occurred within seven years from onset, a percentage of 81. In case 35, with duration of thirty years, the cause was insolation. The average duration of disease in the thirty-two who died was 4.5 years: excluding the case with the exceptionally long course of thirty years, it was 3.6 years.

B. The average duration in the seven cases who were discharged was 2.86 years. Four were more or less improved and with good care life may be prolonged for several years. The three who were stationary cannot be expected to exceed the highest average duration, viz., 4.5 years.

C. The average duration thus far in the cases still remaining in the hospital, excluding the case of unknown duration, is 5.8 years. Two of these are improving, and one (case 39) may recover, if on removal from hospital he abstains totally from alcohol. The second (case 40) is now free from delusions, is partially oriented, and memory for recent events is better.

Etiology: Under this head are included cerebral lesions, focal or diffuse, as well as "shock," and insolation. Intemperance was a known factor in nine cases, and was probably an element in several more. In two cases the cause was "unknown" (20 and 24). Owing to the difficulty in many cases of securing a complete and accurate history from the onset, some of my statistics have only a relative value. The following table shows the various causes, assigned or probable:

Left hemiplegia	18
Right hemiplegia	12
Bi-lateral hemiplegia	1
Apoplexy	5
Apoplexy and syphilis.....	2
Insolation	4
Cerebral tumor	2
Cerebral hemorrhage	2
Cerebral thrombosis	2
Injuries to head.....	5
"Shock" and childbirth.....	1
"Shock" and intemperance.....	1
Epilepsy and intemperance.....	1
"Shock"	1
Unknown	2

It appears that in 44, or 75% of cases, there was a lesion of the brain, and if we add the five cases due to "injury to head," the percentage will be 84. The head injuries assigned as causes were:

1. Blow on head, coma for two hours; one year later "convulsions" and aphasia (case 22).
2. Gunshot wound in head (case 27, 9, V).
3. Blow on forehead, followed by incomplete left hemiplegia (case 34).
4. Fall down stairs while drunk; fracture of base of skull (case 39).
5. Fracture of left temporal bone (case 40).

In the case due to "shock," no residuals were noted here, but autopsy revealed old focal disease (case 48). Case due to "shock and intemperance," no residuals noted here, but autopsy revealed old thrombosis (case 49). In case due to "shock and childbirth," we found all the symptoms of multiple sclerosis of brain and a subsequent hemorrhage into the internal capsule (case 10). In the cases due to insolation, two presented no focal symptoms here; one presented cortical motor aphasia, paraphasia, and epileptiform seizures; and one a left Babinski.

Heredity: Some hereditary tendency was found in eighteen cases, none in twenty-nine cases, and in eleven cases no history was obtained, either positive or negative. In the former we find seven cases of paralysis or apoplexy. One father died of senile dementia, and one mother of "softening of brain." In one case the father and a paternal uncle were "very intemperate." In another, father was an epileptic, and a sister was "strange." In the other cases various relatives were said to have been "insane."

II. ANALYSIS OF MENTAL SYMPTOMS.

The very term *dementia* indicates a deterioration process, and this was present, in varying degrees, in each case, and in a few cases recalled the point of obliteration of the mental faculties early in the course. In some cases after a certain grade of deterioration had ensued, the symptoms remained stationary for some time, while in a few cases improvement was noted, in memory especially, and the presence of insight into the nature of the disorder. In but one case (39) now in hospital, is there any hope of restoration of capacity for mental work. In regard to those discharged as improved, we have no subsequent history to guide us. I have classified the mental symptoms according to the form of mental status in vogue here, and which is modelled on that of Kraepelin.

A. Perception: In 29 cases no hallucinations or illusions were noted at any time. In 15 cases auditory hallucinations were noted; in 2 cases, visual hallucinations; in one case, olfactory hallucinations, and in one case visual illusions.

B. Consciousness was clear in eleven cases; in all the others it was more or less clouded, as shown by disorientation for time, next for place, and last of all for persons. This disorien-

tation corresponded pretty closely to the defect of memory. In all the cases attention was easily fatigued.

C. Memory continued quite good in case 21, with a duration of ten years. In all the other cases it showed some impairment, and in three cases it was almost absolutely obliterated (cases 24, 25, 43).

D. Train of thought: Incoherence was noted in seven cases, circumstantiality and desultoriness in one each, and paralysis of thought in one case. In every case there was more or less poverty of thought, limitation to personal concerns, and more or less inability to acquire any new ideas, except of the simplest, most intimate nature. In a few cases there was some improvement.

E. Judgment: In every case there was some difficulty in comprehension of the relations of things; some incapacity for the logical development of goal ideas. Where delusions were present, their content is of interest. Some cases presented more than one type of delusion, although perhaps allied, e. g., suspicion and fear; persecution and fear; infidelity and fear, etc. The forms of delusions and number of cases in which they occurred follow:

Delusions of persecution.....	20 cases
Delusions of fear	14 cases
Delusions of infidelity	11 cases *
Delusions of suspicion	6 cases
Delusions of expansion	8 cases †
Delusions of reference	1 case
Delusions of poverty	1 case
Delusions of self-accusation	1 case
Delusions of bad food.....	1 case
Somatic delusions	2 cases ‡
Depressive delusions	1 case
Nihilistic delusions	1 case

* 9 men; 2 women.

† Wealth, 5; detective, 1; simple expansion, 2.

‡ "Fly in brain," 1; "birth of twins," 1.

The delusions were unsystematized, often loosely held, with slight affect, and in only four cases led to definite action, as follows:

Case 12. Delusions of infidelity; threats; and one attack on wife.

Case 38. Delusions of infidelity; fear and persecution; threats and assaults.

Case 54. Delusions of fear and suspicion; two dangerous assaults on nurses.

Case 57. Delusions of fear and persecution; numerous periods of violence.

Per contra one case (56) without any delusions; violent if opposed.

F. Emotions: A very characteristic feature of organic dementia is the emotional instability—the sudden and often apparently causeless transitions from happiness to depression, from laughter to tears, while in the intervals there is indifference, apathy, or even stupor. Moral obtuseness is often present in the form chiefly of disregard for friends, violation of social amenities, and selfishness. As the disease progresses the emotions, like the delusions, gradually become blunted, and the zero point is finally reached. Some of the more prominent emotional disorders noted are:

Fear	19 cases
Increased irritability	19 cases
Sadness	13 cases
Apathy	12 cases
Suspicion	6 cases
Exaltation	8 cases
Hatred, anger	2 cases
Sudden changes	5 cases

The presence of fear in 32.7% of cases is interesting and significant. This is not found in senile dementia. In one of our cases it amounted to terror (case 7). In another "nervous chills" appeared on the slightest agitation (case 15).

C. Volition: An increase of volitional impulse was present in thirteen cases; diminution in thirty-five; anergy in six; while in ten cases there was no special disturbance. Retardation was never present, and stupor only in the end stages. When motor excitation was present it was not lasting. No genuine distractibility was noted, nor heightened susceptibility. Conduct was in accord with the mental symptoms detailed above.

Pathology: The findings in fifteen autopsies may be tabulated as follows;

General arterio-sclerosis	10 cases
Slight arterio-sclerosis	1 case
General cerebral atrophy.....	10 cases
Hydrocephalus evacuo	10 cases
Chronic leptomeningitis	3 cases
Chronic ependymitis	3 cases
Chronic internal hemorrhagic pachymenin- gitis	1 case
Cysts of choroid.....	2 cases
Tumors	2 cases
Old hemorrhage or thrombosis:	
Right frontal lobe.....	2 cases
Left frontal lobe.....	2 cases
Right ascending frontal	1 case
Right superior parietal	1 case
Right posterior parietal	1 case
Left ascending parietal	1 case
Right gyrus rectus.....	1 case
Left gyrus rectus.....	1 case
Right angular gyrus	2 cases
Right temporal lobe	2 cases
Left temporal lobe.....	3 cases
Left occipital lobe.....	1 case
Cuneate convolution (left).....	1 case
Right calcarine fissure.....	1 case
Left lobus clivus	1 case
Left optic nerve	1 case
Left olfactory nerve	1 case
Right internal capsule.....	3 cases
Left internal capsule.....	1 case
Right external capsule.....	1 case
Right corpus striatum	1 case
Right caudate nucleus	2 cases
Left caudate nucleus	1 case
Right lenticular nucleus.....	3 cases
Left pulvinar	1 case
Right putamen	1 case
Left putamen	1 case
Right globus pallidus.....	1 case
Left globus pallidus.....	1 case
Corona radiata	4 cases
Left corpus callosum.....	1 case
No focal lesions.....	2 cases

Multiple lesions were found in all these cases, and were diffuse in two cases (34 and 35). Focal lesions were present in

the others, namely: on right side only, four cases; left side only, two cases; on both sides, seven cases.

In 26 cases aphasia was present at some time during the course of the psychosis, namely:

In cases autopsied.....	4
In cases dying, without autopsy.....	10
In cases discharged	2
In cases still in hospital.....	10

26

Diagnosis: A clear history of a coarse cerebral disease or lesion, more especially hemorrhage, embolism, thrombosis, trauma or tumor, followed by mental and emotional deterioration, with more or less clouding of consciousness, occasional hallucinations, defect in attention and memory, narrow train of thought, delusions of infidelity, fear, suspicion, etc., and, especially in traumatic cases, a decided and permanent change in the personality, would point distinctly to organic dementia. Nevertheless some difficulties arise in given cases, viz.: 1, in differentiating from dementia paralytica and dementia senilis, and 2, cases without any, or a very imperfect history.

In dementia paralytica the onset is as a rule gradual, and there is a progressive impairment of the latest developed and most complex mental and physical powers, shown especially in defective judgment, looseness of thought, growing incapacity of attention and concentration, moral indifference, lack of propriety, increasing inability to perform skilled labor, etc. While "paralytic attacks *may usher in* the disease, they more frequently occur during the *terminal stage*."¹⁰ In organic dementia the cerebral lesion, though possibly preceded by a few prodromes, *always* appears before the supervention of mental deterioration. The Argyle-Robertson pupils, tremors of tongue, lips and facial muscles, the ataxia and incoordination, and the characteristic speech defect, slurring and elision of letters and syllables with the abundance of delusions, would decide the question as soon as the disease had fully developed. The speech defect is very different from the aphasic conditions found in nearly 50% of the cases of organic dementia, and the chirography is also distinctive. In a *very few* cases of dementia paralytica focal lesions may occur, but

usually *after* the onset of the disease. Repeated examinations supplemented by the most detailed history of the case, may be, and often are necessary to establish the diagnosis, and even then there are some failures.

In dementia senilis the onset is very gradual, except in senile delirium, and the course is less prolonged than in organic dementia. Delusions are mainly of a persecutory character,—neglect, annoyances, deprivation of property, while occasionally expansiveness and egotism appear. The memory is most defective for recent events. Patients often assert that they are 16 or 20 years of age, contemplate marriage, etc. The emotional fluctuations are far less prominent than in organic dementia, and more superficial. There is lack of sympathy, grief over death of friends, and more indifference. There is a lack of fear and suspicion, as well as delusions of infidelity, in contrast to the prominence of these symptoms in organic dementia, occurring in from 29 to 32% of my cases. Finally, organic dementers are not as uneasy, restless, and prone to nocturnal wanderings as senile dementers, and suffer less from insomnia.

In cases of organic dementia where there is little or no family and personal history, we must rely on the age—known or apparent—the presence of physical symptoms of focal cerebral lesions, or their residuals, the mental symptoms in their totality, and the course and duration of the psychosis. In a few cases the diagnosis can be settled decisively only post mortem. At this hospital we have learned to lay great stress on the delusions of infidelity and fear.

Prognosis: The outlook is very unfavorable. Sixty-six of my cases died, after an average duration of 4.5 years, leaving 26 patients still living. Of these 6 showed some improvement, and two marked improvement; one of the latter may partially recover. The remaining cases are steadily deteriorating, and many are leading mainly a vegetative existence. If further statistics confirm my results we may therefore expect some improvement in 13% of cases, and partial recovery in 3%.

Treatment: This is largely palliative. We should promote nutrition, and prevent accidents, bedsores, etc. In cases susceptible to improvement carefully supervised physical and

mental exercise should be tried—a re-education of the cerebral centers.

¹ Dercum. *Mental Diseases*, 1895.

² Starr's *Organic Nervous Diseases*, 1903.

³ Oppenheim. *Diseases of the Nervous System*, 1900.

⁴ Peterson. *Dercum's Nervous Diseases*.

⁵ Berkley. *Mental Diseases*, 1900.

⁶ *Diseases of the Nervous System*, 1893.

⁷ Mills. *The Nervous System and Its Diseases*, 1898.

⁸ Clouston: *Mental Diseases*, 1884.

⁹ Diefendorf: *Clinical Psychiatry*, 1902.

THE GENERAL CONDITIONS ASSOCIATED WITH INSANITY: THEIR CONNOTATIONS, AND CERTAIN DEDUCTIONS AS TO THEIR SIGNIFICANCE.

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The thesis to be defended in this paper is formulated in the following statement. There can not be special change in an organ without general disease in the rest of the organism; and, in the study and treatment of the special condition, the general involvement and its extent are the most important!

There are two assumptions, in this connection, which may be made concerning the human organism; based upon what is known of its cytology and has been demonstrated as to the processes of its functional activity. First, that the primary functions are those of vegetation, and that all others are related and in sequence to some form of activity involved in the processes of nutrition: Second, that the nervous system is the last in the order of development and the most complex in its structure. Also, the complexity of the structure and functions of the nervous system have increased in a direct ratio with the demands upon the general organism, resulting from changes in, and the increasing complexity of its environment. It may be further assumed that the functional cell, wherever found, has a limited potentiality; also a normal plane of response to the incident forces constituted in its environment. This plane of response will, naturally, vary with the individual, and, other things being equal, will depend for the level of its development upon the combined capacities of the parents at the time of conception, the competence of the mother during the period of gestation, and the suitableness of the individual environment during the period of development. It follows, as

the corollary of this statement, that, if for any reason the potentiality of the functional cell is abnormally limited, or, on account of untoward or disastrous conditions in the environment of the organism is manifested excessively, the limit of capacity in the area or organ will be prematurely reached, and the process of degeneration begin. That this is true arrested and defective development, instability in the nervous system, as well as the different tendencies toward degenerative processes in the vegetative organs abundantly prove. It follows, then, that in the study of the processes of disease, we are concerned first with the capacity of the general organism, then with the evidence of functional incompetence or defective structure in the organ or part involved. And, finally, with the relation of the function of the organ involved to the nutritive or eliminative processes in the general organism. In other words; while the morbid histology in the organ may be special, and the symptomatology resulting from its involvement specific; the pathology is general, and the disturbance of the functional activity in the different organs will be in proportion with the intimacy of their relation in function with the organ involved.

During the past twenty-five years many efforts have been made to put the study of insanity upon a scientific basis, but, so far, none of the methods presented have met with universal acceptance. Men doing special work in medicine see in mental aberration a complication, or the apparent result of disease conditions which come under their observation, and with which they are familiar. Each one has tried to explain the manifestations of insanity from the standpoint of his special field. The gynecologist sees the cause of insanity in women in disease conditions in the pelvis which may be associated with the insanity; the ophthalmologist in the motor and visual mechanism of the eyes; the general surgeon in the results of cranial traumata, or the complications of operative procedure. Among neurologists the effort is being made to explain the perversion of mental activity in terms of disease in the cerebro-spinal sensory and motor apparatus, and they see the cause of the insanity in the morphological change in the structure of the cortical cell: While the medical men in hospitals for the

insane are still hampered by the inertia of custom and tradition; and the persistence of the metaphysical conception of insanity. So that they continue to erect the phases and alternations in the manifestations of mental aberration into entities, to which they apply the terminology of metaphysics. It is unfortunate that the terms used to express facts and describe phenomena do not have the same significance to all who use them; and this laxity of definition is more marked in the terminology of psychiatry than in any other branch of medicine; because, in adapting the language of metaphysics, the nomenclature has not been used etymologically: Consequently terms purely metaphysic in their significance are used to describe conditions or express conceptions based almost solely on the data supplied by the study of development, the formulation of physiological experiment, and the revelations of morbid anatomy and histology. Besides, the manifestations connoted by this metaphysical terminology, imply the creation from the phases and alternations in mental aberration of conditions that are *sui generis*, independent of the heredity of the individual affected, his experience, or the influences in his environment. Whereas, we have only to study the conduct of the individual who is insane to know that the phases of his insanity represent reversions; the alternations exaggerations and perversions of the normal cycle of mental activity; while the extent of the reversion, the rapidity and extremity of the alternations, will be determined by the degree of loss of mental capacity. Consequently, there has been the failure to recognize the inherent inconsistency between the conception suggested by the metaphysical term used to define it, and the nature of the data upon which it is based. Therefore, the fact that the conditions with which we have to do in the definition of insanity are purely physical, is lost sight of or ignored; with the resulting failure to recognize that mental aberration, in its clinical and pathological aspects, has to do primarily with the potentiality of the nervous organization of the individual, and secondarily, with the perverted or defective processes of metabolism, as they affect the nutrition of the nervous system. In other words, we have to recognize that the degenerative

process which makes mental aberration apparent, is primarily a general one, affecting the vegetative functions.

The following statistical studies are concerned with all of the patients admitted to the hospital in St. Peter during the past nine years. The object of this method of study was to present all of the facts obtained from the careful examination of the individual patient when admitted, together with a record of the information obtained as to his condition before coming to the hospital.

So far as possible we have avoided arbitrary arrangement, and have followed what seems to us to be the natural sequence in the description of the conditions found. The only arbitrary arrangement has been the division of the patients into four classes; representing the different degrees of defect present, and the form in which the degeneration is manifested. We have classed as "unstable" all of those individuals, without regard to age, who have become insane and apparently completely recovered. Under the heading "primary degeneration" we have classed all those individuals who have become insane during the period of adolescence, and who have not recovered. We class as "consecutive" those who have become insane during the period of adult life, as the result of physical disease, mental or physical strain or overwork, and who do not recover. While under the head of "senile degeneration" we class all those who become insane after 55 years of age, and lapse into dementia.

Although this classification is apparently arbitrary, it really is not, except as to the assumption that all who become insane represent some degree of instability or defect.

Under "heredity" are classed those constitutional conditions usually described as diathetic, and which have been found to exist in the parents or near relatives of the patient.

Under "concurrence" is recorded the presence of diathetic conditions in other members of the family in the same generation.

Under "mental state" we designate the manifestations of mental aberration present at the time of admission, and in such terms as seem to us most primary and least liable to misinterpretation.

Under "form of sense perversion" we enumerate the manifestations of perversion in the special senses as we have been able to detect them. The same plan has been followed in the two other subheads of the second table, i. e., the statement of the manifestations of intellectual impairment as we have observed them, and the nature of the delusion that they represent.

In the third table is recorded our observation of the physical defects found, and the affections of the general nervous system.

The other tables cover the result of physical examination, and need no explanation.

These tables, and the methods of study involved in their preparation, have been in use long enough for us to formulate some conclusions as to their value as a means of record, and their significance with relation to insanity and its manifestations. The result of this method of study has been to determine the relation of the performance of the vegetative functions to mental activity in the insane, and the influence of disease conditions, or impaired functional activity in the body organs, in the production and maintenance of perverted mental activity; as well as the relation between chronic degenerative changes in these organs and similar changes in the brain.

From January 1st, 1894, to January 1st, 1904, there were admitted for the first time 2,366 persons—1,429 men and 937 women. Out of this total 165 men, approximately 12%, and 181 women, approximately 20%, were classed as unstable; 476 men, approximately 33%, and 246 women, approximately 26%, were classed as primary degenerates; 582 men, approximately 41%, and 388 women, approximately 41%, were classed as consecutive degenerates; 206 men, approximately 14%, and 122 women, approximately 13%, were classed as senile degenerates.

In this study the term heredity is used to indicate any diathetic condition in the parents or grandparents, that, on account of its interference with vitality might result in the production of defective offspring.

One hundred and sixty-six men and 119 women had a neurotic heredity; 269 men and 212 women had an heredity of

insanity; 135 men and 76 women had an heredity of alcoholism; 199 men and 170 women had an heredity of phthisis; 59 men and 60 women had an heredity of rheumatism; 72 men and 266 women had an heredity of cancer. Concerning 504 men and 416 women we could not obtain definite information, but what evidence there was, coupled with the history of their mental status, would have classed them relatively among the different subdivisions here given.

In the families of 126 men and 120 women there was a concurrence of insanity; in the families of 89 men and 50 women phthisis; in the families of 7 men and 13 women cancer; in the families of 3 men and 11 women epilepsy; in the families of 14 men rheumatism; in the families of 11 women paralysis. It is interesting to note that in both heredity and concurrence, insanity and phthisis occurred with the greatest relative frequency. The association of cancer with the heredity and concurrence of so many of the women is also significant.

Four hundred and forty-two men and 266 women were excited; 678 men and 454 women were depressed; 42 men and 50 women were delirious; 77 men and 109 women were stupid; 442 men and 546 women were demented.

All of the cases that were depressed at the time of admission, became excited in some degree before they recovered or lapsed into dementia; while all of the cases that were excited at the time of admission, became depressed. Besides, those cases that were depressed at the time of admission, who recovered, and were again admitted, were excited in the beginning of the second attack; while those among them who were admitted for the third time were again depressed. The converse of this alternation occurred in those who were primarily excited. Furthermore, in the small number of cases where it was possible to trace with a fair degree of accuracy the life history of the patient, it was found that there had been alternating periods of exaltation and depression from the period of puberty, increasing in intensity and becoming more prolonged as the individual grew older and the conditions in his environment more exacting. The final outbreak, which made the mental aberration apparent to his family, followed physical deterioration, or the operation of some untoward experience; so that

there was sufficient loss of mental capacity to deprive him of self-control.

We describe as demented only those cases in which the mental reduction has gone so far as to make the loss of mental capacity the most conspicuous element in the insanity.

Ten men and 17 women had olfactory hallucination; 193 men and 160 women visual hallucination; 608 men and 416 women auditory hallucination; 36 men and 38 women gustatory hallucination; 151 men and 48 women tactual hallucination; 115 men and 67 women visceral consciousness; 109 men and 88 women sexual excitement; 78 men and 35 women sexual perversion; while in 491 men and 356 women the form of sense perversion was not apparent.

One hundred and seventy-six men and 70 women had grandiose ideas; 104 men and 194 women had depreciatory ideas; 585 men and 566 women had persecutory ideas; 612 men and 449 women were confused; 175 men and 170 women were the victims of religiosity.

We do not describe a patient as confused unless the confusion is the predominant element.

Forty men and 42 women had systematized beliefs; in 258 men and 156 women the beliefs were variable; in 663 men and 486 women the beliefs were undefined; in 370 men and 232 women the nature of the delusion was not apparent.

The mental state of the patient was always dependent upon the form of sense perversion and the nature of the delusion. That is, those who heard or saw what was pleasing or gratifying were exalted; while those who heard, saw, or felt what was disagreeable, or that suggested danger or misfortune were depressed or excited. Sensations from diseased viscera, the embarrassed respiration and cardiac uneasiness arising from gastro-intestinal distention, gives rise to ideas of poisoning, as do the fetid breath arising from naso-pharyngeal disease, or the disagreeable gustatory sensations associated with a foully coated tongue; while the formications and paresthesiae associated with neurasthenia and vaso-motor disturbance suggest personal defilement or the passage of the electric current. Under the influence of physical states resulting in auto-intoxication, delirium or stupor develops, according to the

degree of exhaustion in the nervous system. It was also noted that delirium was most common in those patients that were classed as unstable, and that the delirium was always preceded by a period of restlessness, insomnia, and refusal of food, with the physical evidence of exhaustion.

In 91 men and 150 women there was asymmetry of the head; in 447 men and 594 women there was asymmetry of the face; in 17 men and 84 women there was general deformity.

In 63 men and 27 women the superficial reflexes were exaggerated; in 61 men and 51 women they were diminished; in 361 men and 304 women they were absent. The knee-jerk was exaggerated in 480 men and 435 women; in 171 men and 165 women it was diminished; while in 85 men and 60 women it was absent.

In 317 men and 297 women there was local paresis; in 126 men and 59 women general paresis; in 25 men and 12 women there was cerebral paralysis; in 14 men and 8 women bulbar, and in 17 men spinal paralysis; 58 men and 45 women had epilepsy.

In 549 men and 343 women there was tremor of the tongue; in 178 men and 89 women there was tremor of the facial muscles; in 546 men and 344 women there was tremor of the limbs; in 468 men and 364 women the tremor was with intention; while in 179 men and 141 women it was a rest tremor.

In 320 men and 307 women there was incoordination; in 92 men and 36 women clonus was present; in 90 men and 128 women there was some degree of local spasm; while in 6 men and 42 women the spasm was general.

With only occasional exceptions the manifestations of disturbance in the sensory and motor parts of the nervous system were what are usually described as functional, because they disappeared as the physical health of the patient was restored. However, the mimesis of focal and system disease in the general nervous system is very close sometimes, and the recovery from paralysis and contracture, after long periods, is apparently marvellous. This is especially true of those motor manifestations which are associated with the different forms of vaso-motor disturbance occurring during the progress of chronic degenerative disease in the kidneys.

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(WOMEN.)

Reflexes.				Gross Diseases of Nervous System.				General Nervous Disturbance.												
Knee Jerk.		Pupils.		Paresis		Paralysis.		Tremor.								Spasm				
Diminished.	Abent.	Dilated.	Contracted.	Unequal.	Response Absent.	Response Impaired.	Local.	General.	Cerebral.	Bulbar.	Epilepsy.	Tongue.	Facial Muscles.	Limbs.	Intention.	Rest.	Incoordination.	Clonus.	Local.	General.
39	10	93	7	17		43	72	12	2	2	4	61	16	61	70	15	61	6	20	3
33	15	110	1	35		66	103	3	1	25	90	21	75	75	34	61	9	36	18	
67	25	166	6	32	4	2	109	104	3	4	111	142	35	158	161	74	122	10	55	6
26	10	32	11	14	7	57	52	19	6	2	5	47	17	47	55	18	60	11	17	15
165	60	401	35	88	20	369	397	59	12	8	45	343	89	344	364	141	307	36	128	42

Among the 937 women, 233 suffered from some form of menstrual disorder. 443 had leucorrhoea, but in the majority of these cases the discharge stopped promptly on the establishment of local cleanliness; 408 women had some displacement of the uterus, and in 222 of these cases there were adhesions; in 29 women there was subinvolution. There were 333 cases of laceration of the cervix, and 424 of laceration of the perineum. In 238 cases there was cystocele, and in 228 rectocele. There were also a great variety of minor ailments present, as is shown in the tables. Severe pelvic trauma or extreme septic involvement were very uncommon. There were only 79 cases of disease of the ovaries, and none of destructive involvement of the pelvic viscera.

Even where pelvic disorder of some apparent severity was present, no complaint was made by the patient, nor was there any evidence from the history accompanying her, that pelvic disease had been complained of, or suspected by the family physician.

However, treatment, both palliative and operative, was always efficient in improving the physical condition of the patient, and to the extent that a source of irritation was removed, quieting her as well.

Reference to the tables concerned with the physical conditions present at the time of admission will show that practically all of these patients were suffering from some kind of physical disease, most commonly malnutrition, perversion in the digestive processes, and interference with the processes of elimination. The clinical histories in all of the cases included in this study, also show that improvement in the mental condition of the patient was dependent upon the elimination of these evidences of perverted metabolism; while in those cases where physical examination disclosed the presence of progressive organic degenerative processes, particularly those involving circulation and elimination, the prospect for mental regeneration was equally as hopeless as that for physical restoration; and in those cases where the degree of defect was so marked that dementia was coincident with adolescence, the evidence of arrested development or limited potentiality in

other parts of the organism was equally obvious, as shown in the statistical records concerned with primary degeneration.

In all of the cases there was some degree of mental reduction; and in those cases where excitement was present on admission, it had been preceded by a period of confusion and depression; while in those who were depressed, there was antecedent confusion and irritability. The absence of intelligent observation on the part of the relatives of the patient precludes the obtaining of accurate information as to when the mental aberration first manifested itself; but so far as we have been able to determine from repeated and persistent cross examination, it is safe to say that there had been periods of confusion, suspicion, and dread, for at least a year before the untoward conduct or overt acts of the individual made the nature of his condition manifest to his friends; because the degree of mental reduction had become so great that, under some special strain, inhibition was no longer possible, and the impulses, centrifugally generated, could no longer be controlled. For obvious reasons, the degree of defect in the nervous organization would determine the extent and permanence of the mental reduction and the order in reversion; as well as the rapidity of the progress of degeneration.

In the progress of degeneration some form of special sense perversion is always apparent: Most frequently auditory, next visual, then tactual and gustatory; and the two latter are most common in those cases where chronic disease involving the digestive tract or the eliminatory organs has been present for some time. The delusions which result grow out of the experiences of the individual which have been disagreeable, mortifying, or disastrous, which his confusion and failing mental capacity lead him to associate with his immediate environment; and into consonance with which he interprets the language and conduct of his friends and associates. Introspection and morbid self-consciousness magnify and intensify all self-relations, while the neurasthenia which results from the effort to overcome the constantly increasing confusion, develops an crethism which registers all impressions in a staccato key, and turns the every day experiences and trials, heretofore borne with equanimity, into calamities; while the

conduct of his friends and the attitude of those about him becomes pregnant with suggestion of accusation, denunciation, or threat, and the resulting belief concerns that which has been anticipated and dreaded. Or else, as the result of that euesthesia which follows some forms of intoxication, grandiose ideas develop, which may degenerate into the phantasmagoria of acute exaltation, either material or beatific. Again, a dysesthesia may be present instead, accompanied by painful sensations, dread, fear, agitation, or stupor.

The clinical significance of this method of study rests upon the assumption that the mind, so called, is not an entity, and can not be treated directly. Also, upon the fact that the nervous system supplies nothing toward its own nutrition, and is not concerned in the elimination of the waste materials of its own functional activity; but is, on the contrary, dependent upon the vegetative organs for its maintenance. It may also be assumed, in consonance with current hypotheses concerning the role of autointoxication in the production of disease of the nervous system, that the failure in the functional activity of those organs which have to do with the elimination of waste materials from the general organism, would have a more important bearing upon the development and persistence of insanity, than would a similar failure in the functional activity of those organs having to do with the preparation of food materials for assimilation. In this connection it should also be recognized, that, as it is the principal function of the general nervous system to direct the activities of the rest of the organism, a failure in this dirigent function would, of necessity, interfere with the normal activity of the vegetative organs; thus reducing their capacity for work, lowering the general vitality, and further decreasing the capacity of the general organism for adaptation to external relations; by involving the retention, not only of the waste products of its activity, but also the generation of toxic substances from the food materials taken into the digestive tract. Finally, we have to consider that, while these conditions affect the majority of individuals in some degree; only a very small percentage of those affected ever become the victims of mental aberration or degenerative brain disease.

Our experience has taught us that, while the extent or degree of the mental disturbance is not necessarily in proportion with the amount and nature of the disease or functional failure in the vegetative organs; in those cases where the degenerative change in the general nervous system is going on, with progressive mental reduction, there is a similar process, developing *pari passu* in the rest of the organism—slowly and unequally in ordinary dementia, rapidly and comparatively uniformly in general paresis, insular sclerosis and hereditary chorea. From these observations it seems obvious that there must be involved in the development of insanity, not only the directly acting cause furnished by the environment of the individual, but also instability or defect in the development of the general nervous system, resulting in a limitation of its potentiality to a varying degree. Furthermore, the groups into which the various manifestations of insanity would naturally fall, would be made up of those individuals in whom there was the same relative degree of defect, and the variations among individuals in the different groups, would be the obvious result of difference in experience and environment. In other words, mental activity must necessarily be correlated with all of the organic processes, of which it is the synchronous expression.

Primarily, then, we have to deal with the cerebral potentiality of the individual, as influenced by the conditions in his environment which exhaust this potentiality directly by over-taxation, or indirectly by the influence of impaired vitality in the general organism in further reducing the mental capacity of the individual. Next in importance comes the recognition of the fact that in any given environment the general conditions are practically uniform for all who are included; consequently, if these conditions are harmful to some of those who live under them, there must be some inherent weakness in the individual which unfits him to adapt himself to them, so as to conserve his own welfare. When this inability is in the direction of physical activities the result is apparent to every one; but, strangely enough, it has not been recognized as equally obvious that the lack of mental capacity which shows itself in imperfect control, and incapacity for persistent effort

are evidences of instability and defect; and therefore the expression of a limited cerebral potentiality. A careful study of the natural history of insanity will show, also, that the mental aberration exists for a long time before it is manifested in the conduct of the individual, and it is a well-known fact that it may be present during his whole life, without materially interfering with his relations with those about him. What is it then which makes manifest the insanity? It is the loss of control of the activities that are manifested in conduct! And this loss of control always follows in the wake of mental reduction; that is, the process of dementia. It is for this reason that those who are not familiar with insanity, from constant association with the insane, can not comprehend the existence of mental aberration, unless it is manifested in bizarre conduct, or appreciate mental alienation, that is not shown by criminal acts or imbecility. It is for this reason too, that degeneration is thought of as a result instead of as a process, and dementia as a terminal condition only, instead of as a loss of mental capacity, which may be slight and transient or extreme and progressive.

Post mortem, in acute insanity, there is nothing distinctive; and the periencephalitis and encephalitis which may be present, does not differ from inflammation in the brain and its membranes in those who are not insane. In a few cases, where a large trephine opening in the anterior portion of the skull, has enabled us to study the appearance of the membranes and brain surface during life, the distended arachnoid space, flattened convolutions and the white streaks along the vessels, did not differ materially from the post mortem appearance in dementia, except that after death the fluid is most commonly gelatinous. The most conspicuous change in the condition and appearance of the coverings of the brain, results from the thickening and adhesion of the dura and pia along the median fissure. These adhesions, and the fibrous increase, interfere with the emptying of the pial veins and narrow the lumen of the longitudinal sinus. While it is probable that some pial adhesion occurs in almost every one after 35 years of age, these adhesions are at the vertex. It is the progress of this adhesion forward, and its extension laterally, that is the most

constant concomitant of progressive degeneration of the brain in the intellectual sphere. The peculiar arrangement of the lymph channels in the brain also adds to the difficulty, when the circulation is interfered with, so that autointoxication in the brain may be apparent and persistent, when there is no evidence that it is general; and the arrangement of the cortical blood vessels shows how stasis may be present, when the general circulation in the brain is not interfered with. The thickening of the pia and the progressive occlusion of its vessels in certain areas explains how easily the nutrition of the cortex may be interfered with permanently; while the resulting lymph and venous stasis mechanically accelerates the progress of atrophy. So, that, post mortem, we find flattened convolutions and shallow fissures. These changes are, however, general, not specific, nor peculiar to the insane, although always present in cases of terminal dementia.

In cases of dementia, the frontal lobes, anterior to the precentral fissure, are always atrophied, and the extent of the atrophy is in definite proportion with the degree of dementia. This is the only constant macroscopic change in the brain in our experience, but there is usually associated with this shrinkage in the frontal lobes, atrophy in the convolutions surrounding the insula, and this atrophy is usually most marked in the convolutions of the operculum. Next in order of frequency is dimpling over the angular gyrus and the superior parietal lobule.

The morbid histology of the brain, in those dying insane, is not only not distinctive, but as shown by the writer,¹ similar changes can be produced in the lower animals by starvation and exhaustion. In terminal dementia the changes found are similar to those present in senility, only differing in degree and in the number of elements involved.

That which distinguishes the human being from other animals, is his ability to appreciate the relation of self to environment; and that which distinguishes human beings from each other, is the extent to which this appreciation is developed, as shown by their conduct. In the light of current knowledge, both physiological and pathological, it is obvious that the mind, so called, is not an entity; but, on the contrary,

is constituted in the cognition and relation of the impressions which come to the brain through the special senses, and is manifested in the direction of the resulting activities that are concerned with the maintenance of the individual. The recognition and re-relation of the impressions that result from these activities is a more complicated process, and is best described by the term intellection; because it has to do with the correlation of recent and pre-existing impressions as they affect the welfare of the individual.

The intellectual horizon of the individual is necessarily limited by his mental capacity; while its extent will be determined by his environment and the nature of his experiences. You would not expect the same response from the individual of limited capacity and no culture, that you would from the keen intellect highly cultivated; nor would the definition of their experiences be equally valuable with relation to their individual welfare. Mental activity is not persistent indefinitely on the same plane any more than is physical activity. That is, there is a cycle consisting of the normal plane of activity, out of which develops a period of exalted activity, to be followed by a more or less gradual fall to the subnormal, and the return to the normal. These variations are most apparent and extreme during adolescence, most conspicuous in the unstable, and they may be aberrant in the order of their recurrence. The persistence of the normal plane of activity is also dependent upon the physical condition of the individual. Vigor will prolong the exaltation of capacity; while lowered vitality will intensify the depression from the normal plane. Besides, under certain conditions representing strain or exhaustion in the nervous system, a rapid variation in the complements of the cycle may occur, with entire disappearance of the normal plane of activity. Therefore, there is represented in the phases and alternations in the mental activity of the ordinary individual, all of those manifestations which, when extreme, are described as the evidences of insanity. That is why confusion is the first manifestation of insanity; to be followed by aberration of relation, which results in special sense perversion, that, in its

turn, forms the substantive basis for delusion, and the centrifugally generated impulses by which it is manifested. The emotional manifestations are the obvious sequence and the natural result of the character of the ideas generated, the form of the belief, and its definition with relation to the welfare of the individual. However, it is only when the mental reduction has gone so far, and the confusion has become so great that the individual ceases to be able to recognize and re-relate the impressions coming through the senses from his environment, and properly coordinate the activities involved, that he loses control of himself to the extent that his condition becomes apparent to those about him.

All manifestations of motion in the human organism, outside of those automatically generated to meet the demands of the vegetative processes, and avoid obvious sources of danger, are in response to the impressions received from the conduct of others, and their relation with similar pre-existing impressions, as they have generated and been manifested in our own conduct. Mental activity, then, as ordinarily understood, is manifested in the cognition and relation of the impressions received from our environment of the conduct of others in comparison with our own. The capacity to do this evidences our power of attention, while the ability to persist must necessarily be dependent upon the vitality of the general organism. Any failure in this process would mean confusion and incoordination from incomplete relation; just as is shown in the motor sphere in locomotor ataxia, chorea, or athetosis.

Just as the ordinary processes included in the manifestations of consciousness in the sane involve, first, the impression through one of the senses, to be followed by impression through one or more of the others; then the picture formed by the process of relation; the fitting in and combining with analagous pre-existing impressions, the persistence of the picture, its proof by comparison with others; as well as its consonance with like processes in other individuals: So, in the insane, there are like processes going on in the same regular sequence; the result differing because of the perversion of the elements of the cognition; while the aberrant functioning of the brain in the re-representative processes, leads to

incongruous arrangement and confusion. The sequence is complete in the belief which results from the persistence of the confusion and incoordination.

The natural history of insanity shows that mental perversion and aberration are concerned with the first and simplest of these processes; while mental reduction implies loss of capacity to carry out the more complex processes. In other words, mental perversion and aberration are always related with those forms of activity which have for their function the cognition of the purely animal relations, that is, they are concerned with the simplest forms of impression through the senses; while the loss of mental capacity affects the processes of intellection. In the lower types of mental development there is a more or less complete absence of intellection, so that the individual is easily confused by mental effort, sensual hallucination is very common, and is manifested in superstition; taking the form of religiosity, the seeing of ghosts, infliction by witchcraft, the administration of poison, etc.

All of us hear sounds, see objects, perceive odors and tastes, which we attribute to something else than their real origin. We are subject to disagreeable tactual sensations, and to visceral consciousness. Again, under the influence of fatigue, mental or physical, there is the tendency to lapse into self-consciousness and introspection, with the resulting doubt and suspicion, which is the characteristic of the child and the imbecile. The actions of others, heretofore a matter of indifference, take on a new meaning and significance. And, if the circumstances which determined the morbid introspection were mortifying or distressful, we become furtively suspicious and resentful. However, experience and the evidence of demonstration correct our false impressions. But, in the presence of limited cerebral potentiality, under these same conditions, the transition from temporary to persistent confusion would be easy, and the aberration resulting so marked as to materially interfere with the welfare of the individual and his relations with those about him.

The following conclusions seem to be warranted by the data presented. In dealing with insanity, and its manifestations, we are concerned with the cerebral potentiality of the

individual in considering its nature; with heredity and environment in determining its form and sequence; while the evidence of involvement of the general organism in the degenerative process must be our guide in anticipating its progress and termination.

¹ The Pathology of Delirium. American Journal of Insanity, Oct., 1903.

THE MENTAL CONDITION IN CRETINISM.

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In perusing the various text-books and monographs upon Cretinism, an interest in the subject having recently been aroused by two cases of sporadic cretinism which came under my care, I was struck by the meagre information given by most English and American writers concerning the mental condition found and the lack of unanimity in some respects concerning its relationship to other forms of idiocy and imbecility. A number of writers dismiss the subject by merely remarking that cretins are idiots or imbeciles and many seem to imply that this mental condition is a necessary attribute of cretinism, distinguished only from other forms of weak-mindedness by various physical deformities which accompany the cretin's condition, and though almost all writers to-day affirm the lack of significance in the frequently found tri-basilar synthesis or the presence of epiphyses till adult life, a few still wrongly give these signs undue importance.

That athyreosis is the condition which evokes cretinism is universally accepted, but the exact factors which cause the lack of development from athyreosis are not as yet well understood, nor has the relationship between thyroid activity and other types of idiocy been well threshed out. This subject is of importance to us because in all probability it will help us in investigations of the psychoses accompanied by or due to metabolic disturbance and at least gives us some broad ideas as to the workings of the internal secretions upon psychic functions. In this paper, my attempt will be largely a review of recent investigations upon this subject.

Case I.—S. K. was born in 1894 near Pittsburg where his father and mother and other relatives now reside. His parents are first cousins, both healthy and apparently normal. He is
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the third child of five, the second oldest having died very suddenly a few months after birth and according to his mother resembled S. R. The other three children are normal. A cousin, a girl 17 years of age, has been under my care for myxedema. Alcoholism or other etiologic factors are wanting. The parents were born in Russia and are both of average build and intelligence.

Case II.—A child 11 years of age; father, farmer and healthy; mother also strong and active, nothing etiologically elicited, except that about the time the boy was born his parents were in extreme poverty. Both these children present the characteristic facies of cretinism, the myxedematous condition of the skin and the lack of osseous development. Both have subnormal temperatures, muscular weakness and difficulty in locomotion. The second case was not brought to see me because of his cretinism, but on account of his supervening psychosis. Some months before I saw him he developed sleeplessness and agitation instead of his characteristic sleepiness and apathy. Constant irritability, crying out as if in pain, attempts to hide under the bed clothes or in the closets, refusal to eat and drink and attempts to bite any who came near, were the symptoms noticed. These manifestations were quite distinct from the emotional outbursts of anger and resentment, which he, like many other cretins, frequently had. Had the boy been of sufficient intellect I have no doubt that confusion and disorientation would have been noticed and possibly hallucinations would have been clearly in evidence. This psychosis slowly subsided under the use of thyroid extract and arsenic internally, subcutaneous injections of camphor and daily warm baths. The haemoglobin increased from 32 per cent to 65 per cent and the relative proportion of white and red blood-cells became normal. Case I was given three grains of thyroid extract daily with marked results. When I first saw him, his measurements were as follows:

Root of nose to occipital proturbance.....	32 cm.
Ear to ear.....	26 cm.
Circumference of head.....	53 cm.
Height	98 cm.
Abdomen	62 cm.
Chest	54 cm.

Cephalic index 81 per cent, therefore brachycephalic. His weight decreased in three months from $37\frac{1}{2}$ lbs. to $35\frac{1}{2}$ lbs. His genital organs were entirely undeveloped. His teeth were as well developed as those of any boy of nine years. The pads of fat in the supraclavicular areas disappeared as did also his protruding pouch-like belly. His umbilical hernia also disappeared and his bowels from being obstinately constipated evacuated themselves daily. He soon began to increase in height, so that in the six months he has been under my treatment he has gained over two centimetres in stature, and only weighs one pound less than he did when he first came under treatment. His height is now $100\frac{1}{2}$ cm., his abdominal girth 45 cm., his weight $36\frac{1}{2}$ lbs. He wore $5\frac{1}{2}$ shoes six months ago, at present he requires No. 8 and now can be fitted with ready-made clothes. His arteries were hard and after the administration of thyroid had removed the superficial fat, the left external carotid artery stood out tortuous, twice almost doubled upon itself and as hard as a pipe stem. Before the administration of thyroid he presented the characteristic torpidity and stupidity so often noticed in cretinism. Manifestly, however, his intellect had not been of a very low grade, because he had always answered questions by "No" or "Yes" and would sit for hours making very fair attempts at drawing. He could count up to ten and was able to name different objects around the house. Under the administration of thyroid extract, his ability to speak rapidly augmented. He became restless. His motor strength increased. He became mischievous and curiously no longer would sit and draw. He now is about on a par with a five-year-old child, has a bright intelligent countenance and plays with the children of his stature and intelligence. His haemoglobin percentage was 22 when I first saw him and now it is 70. I made no blood-counts in this case. He still has the saucerlike hands, and broad and thick lower jaw seen in cretin children, but otherwise looks normal. In both cases, the thyroid treatment raised the bodily temperature and the pulse rate.

In case II, while his psychosis has disappeared, there has been but little improvement intellectually from the use of

thyroid extract. He has lost considerable weight, has gained a little height, the physical signs accompanying cretinism are no longer as strongly accentuated, but improvement has been very slow.¹

The mental condition of cretins is in most cases that of an apathetic, anergic imbecile. We find all grades of mental enfeeblement from the purely vegetating animals represented by the endemic cretins (*Pflanzenmenschen* of Kocher) to the highest grade of imbecility; some few sporadic cretins are of normal intelligence. The hopelessly idiotic lead little more than vegetative lives, are completely anergic; lie for hours without moving; if placed in the sun will sit staring at it hour after hour, doing nothing except perhaps showing anger or hunger. On the next plane we find cretins who intellectually evince slight interest in familiar faces or surroundings, but who are absolutely dependent upon others. They may show some pleasure in eating and drinking and seem to remember the one who brings them their food, swallowing hastily anything brought without stopping to chew it. They may make slight attempts at speech, but articulation is difficult, owing somewhat or perhaps entirely to the swelling of the tongue and of the mucous membrane of the mouth. They understand little of spoken language even when not deaf. They resist all efforts to make them move or to attend to bowel or urine functions. If upon a little higher plane, they show some interest in the surroundings, will remember the names of members of the family or attendants, do not forget any one who has harmed them and can be disciplined. They prefer to be alone, do not worry and are always passive. If physically strong enough, they can be put to light work. Weygandt remarks that they seem to like to beg, but this is a common characteristic of the feeble-minded.

Cretins then are often very imbecile, but it is wrong to assume with Ziehen,² Ewald,³ Sachs,⁴ and others that this is the constant feature. Ziehen even goes so far as to insist that cretins are generally idiotic rather than imbecilic. But the mental condition differs from that of ordinary idiocy or imbecility in that there is a certain hampering of, or inability for, mental effort rather than the incapability of thinking

found in ordinary idiots.⁵ Most cretins can elaborate thought though very slowly, but the deafness or difficulty in hearing which is generally present may make speech difficult or impossible. The cause of this deafness is often not central, but peripheral, due to swollen pharyngeal tonsils, edema of the Eustachian tube or closure of its opening.⁶ If a cretin can hear well, he may attain the mental capacity of the children of his surroundings or be even on a higher plane.⁷ If his tongue and mucous membrane were normal, he would be able to progress more than he generally does. But beyond this stage of childhood he cannot rise on account of these factors. Even without thyroid medication, as was shown in earlier years, if the condition is recognized early, the cretin is capable of more training than other imbeciles. The great apathy present is the worst factor to contend with. There is a secondary functional inability to act, quite different from the⁸ "negativism and aprosexia of the erethetic, versatile, excitable forms of idiocy and the apperceptive inability of the anergic forms often functionally produced." Bayon seems to be the only writer who rightly emphasizes the fact that we are all born idiots and that if, as in cretinism, anything should stop our mental development we would remain so. On the other hand, if at the age of ten or twelve years, hypothyreodism developed, the boy or girl would not progress but would retain the mental development acquired before that age. A recent study of the mental state in myxedema by H. Wolseley Lewis, *Lancet*, April 23, 1904, expresses the similar conditions which come on in developed brains, if we consider the difference in brain-power to start with. He says: "Memory for recent events is generally good; apprehension is fair; coherence of thought good; reasoning power sound; consciousness clear; and the essential change in the patients lies in a deficient power of energizing their motor cells. They complain that they are languid and tired and tell of the immense effort it is to them to make even the simplest movement. It is essentially in disturbances of volition and action that the peculiar mental symptoms of this condition manifest themselves. A diminution of volitional impulse produces that lack of initiative, that

striking immobility of face and body so characteristic of the disease."

In the consideration of cretinism one fact stands out strongly, namely, that all the symptoms and conditions found are due to a disturbance of metabolism and that this is the result of inefficient activity of the thyroid gland. What substance elaborated by the thyroid glands fails to be secreted or what antiferment normally present is no longer found to act upon certain toxic substances in the blood and lymph is not known, but the results of many investigators (Anderson, Boit, Magnus, Levy, Girber) prove that extirpation of the thyroid gland disturbs the nutrition of the body and that the administration of the thyroid gland increases metabolism. That this disturbed nutrition is the basis of the defective mental development in cretinism, as well as of the other signs of lack of development, is plain. In other words, imbecility in cretinism is always at first of a functional nature and, therefore, can always within certain limitations as to the length of time the imbecility has existed be cured or at any rate improved by the administration of the thyroid gland, which introduces into the system that something which has caused a lack of development.

There are few post-mortems upon cretins described in the literature, Osler and Barker, Packard and Hand,⁹ Hanau, Langhans and de Coulon having described their findings. But all of them are silent as regards the brain-cells and fibres. Lately Bayon and Weygandt have interested themselves in this important question and their results will be given later on.

It is true that some older reports have shown the presence of atrophy, asymmetry or hydrocephalus of the brain, but that was at a time when cretinism was frequently confused with idiocy. It is well known that the cells of the brains of idiots are often of an embryological type (the globose cell of Bevan Lewis) and Nissl has described pathologic changes which are not, however, constant in the brains of anergic idiots (low development of cortex, absent cells, etc.). Weygandt¹⁰ and Bayon have lately described a case of cretinism in which the brain cells were not normal. "Nissl's method showed the

nuclei of the nerve cells but faintly and smaller than normal. The axis cylinder was not visible, the dendrites but faintly. The apical dendrites (Spitzenfortsatze) were remarkably long, while in Golgi preparations the cortical ganglion cells sent their processes normally to the cortical periphery. In a normal Nissl preparation the apical dendrite is only indicated; in senile dementia, it is visible to about the same length as that of the cell itself; while in a cretin brain its length is about the same as that of the cell. I have found the same condition in Nissl preparations of an old cretin brain which for years lay in the Wurtzburg pathological collection. I have also found similar cortical pictures in a series of thyroidec-tomized dogs. The nuclei were colored, the cell bodies were only present in a few places or absent entirely, the glia was increased, the apical dendrites of the ganglia cells appeared here also to be considerably increased."¹¹ Hecktoen says that the arrangement of the cerebral convolutions in cretinism is often peculiar. Mills speaks of some of these peculiarities but neither recites cases to show where such conditions were found in true cretins. Bayon says:—"The brain of the cretin is neither too hard nor too soft, it is similar to that of a child of his cretin age; I mean by that, in contrast to his real age, the age of the individual anatomically and morphologically. I cannot at present say anything positive concerning microscopically observable alterations as my investigations have not been completed, but the alterations will not be those found in the acute poisoning known as tetany thyreopriva, nor those found in acute and chronic alcohol poisoning."

The evolution of the conception of thyroid activity is interesting, but cannot be given in extenso in this paper, except to remark that thyroidectomized animals show similar symptoms to cretins, that their arteries calcify, their growth is stunted and that they become apathetic, that the administration of thyroid gland in normal individuals hastens the process of repair in fractures (Bayon), that the thyroid gland has an influence upon the central nervous system and upon metabolism (Horsley, Macalister, Leichtenstern, etc.), that it has blood-forming properties (Kocher, Bruns, Crede, Murray, etc.), lowers blood-pressure in arteriosclerosis (Starr), that replanta-

tion in the peritoneal cavity of thyroid glands offsets the removal of the gland in animals, and that it influences the development of the sexual organs and desires (Guillot, Lawson, Tait, etc.).

Telford Smith discusses the question of whether the defective function of the thyroid is an appreciable factor in the causation of idiocy. He gives us, however, no conclusive evidence except as to the result of the administration of the thyroid gland in such cases. He reports, as does Kassowitz, in Mongolian idiocy improvements of a physical and mental kind varying inversely as the age of the patient. This improvement was not as rapid or as marked as in cretins. He also reports improvements in other types which are apathetic and disinclined to movement or speech and in which there has been evidence of diminished metabolism. There is less apathy and speech becomes spontaneous.

Osler¹² in his complete and valuable report upon sporadic cretinism in America in '97 says that the question of diminished or perverted function of the thyroid gland in causing the mental or bodily defects in ordinary idiocy is one deserving of careful study, but such study has not as yet been successful in deciding the question. An analytic study of those degenerative mental diseases in which we have retarded development is, however, no more important in the solving of these questions than that of diseases in which later in life, as the result of disturbed nutrition, as well as of thyroid glandular inactivity, we get mental decay. Inasmuch as we have lately come to look upon paralytic dementia as a general disease in which we find profound changes in metabolism¹³ (Kraepelin, Robertson, Bruce, Jeffries, McCrae), it is interesting to note that Weygandt calls attention to the fact that in both paralytic dementia and cretinism we find the same triad of skeletal, skin and psychic changes.

Weygandt also calls attention to analogous conditions found in dementia praecox. Here as is well known we have a progressive psychic disturbance deepening into dementia accompanied by disturbances of other organs of the body. Kraepelin in his psychiatry, calls attention to acute variations

in size of the thyroid gland in dementia praecox and Chovstek's facial reflex is often noted in both diseases.

"In chronic cases of dementia praecox we often," says Weygandt, "note a gray yellow skin, pasty, doughy, reminding us of myxedema at first glance." But such conditions may be found in any chronic degenerative disease where metabolism has failed and the fatty deposits are never elastic and appear upon the skin and stomach where fat accumulates in sedentary people.¹⁴

The form of idiocy which resembles cretinism most strongly—Mongolian idiocy—has been the subject of considerable discussion and its characteristics are now well understood. Both represent conditions of unfinished development, Mongolism being, however, always an antenatally arrested development and cretinism being generally acquired after birth. In both conditions we may have the same muscular weakness, stunting of growth, lowered vitality and body temperature, protruding abdomen, constipation, hernia, depressed bridge of nose, small palpebral fissure, protruding tongue and inarticulate speech. In both of these affections certain physical peculiarities have been noted and described. The incurvation of the little finger,¹⁵ the transverse or irregular fissuring of the tongue, with hypertrophy of the circumvallate papillae and a contracted arch have been dwelt upon in connection with Mongolian idiocy, and a thickened spade-like hypothenar eminence like that seen in lower animals in cretinism, by Koplik and Levinstein. These signs have been denied by some, but if present, as they undeniably are in many cases, they can only be regarded as degenerative stigmata.

Oslen¹⁶ questions the observation of Telford Smith, concurred in by others, that Mongolian idiots are slow and deliberate in movement and eventually apathetic and from observations with Kerlin and Elwyn believes them to be "vivacious, often very sprightly and mischievous." Weygandt¹⁷ claims they are apathetic when young, and become erethetic later on.

The following differential diagnosis is after Sutherland:

CRETINISM.

- 1 Characteristic features seldom present before sixth month.¹⁸
- 2 Dull, apathetic, impassive.¹⁹
- 3 Swollen, dry skin, fatty deposits, coarse and scanty hair.
- 4 Large, swollen, protruding tongue.
- 5 No characteristic skull changes.
- 6 Swelling of eyelids causes small palpebral fissure.

MONGOLIAN IDIOCY.

1. Present at birth.
2. At first apathetic they later become imitative, fairly active, but are shy.
3. Absent.
4. Large, often protruding but not swollen.
5. Skull flattened antero-posteriorly, brachycephalic.
6. Palpebral fissure small without swelling of eyelids.

It is not the purpose of this paper to consider the different forms of diseased growth which might be confused with cretinism. We might mention, however, that Bayon²⁰ has written an interesting article showing that the cases of intra-uterine cretinism that have been published were probably cases of congenital rickets or foetal chondrodystrophia. Achondroplasia has nothing except stunted growth in common with cretinism. Infantilism may be associated with disturbed thyroid function, but cretinism is more than infantilism, it is infantilism + myxedema.²¹

No statistics have been made concerning the effects of continued thyroid administration as the further histories of cretins do not seem to have interested many reporters sufficiently to publish them later on. But it would seem that the gland must be given continuously except for short intermissions, though in some cretinoid conditions in early life the gland given for a short time seems to have permanently restored normal glandular activity. From some reports (Gregor) if the glandular extract is pure, the child can stand an enormous dosage without ill-effect; but if this is so, much of the thyroid extract that is in use is impure. The rise of temperature noticed (Cotton) in its use is probably the result of an impure extract.

That Osler's articles in 1893 and 1897 have awakened interest in cretinism in this country is shown by the number of cases reported since 1897, which are herewith appended:

1. ACKER, GEO. U., Washington. A Case of Myxedema. *Med. Record*, June 27, 1903, Vol. 65, p. 1037. 2 years old. Normal until 18 months old; after an attack of diphtheria its appearance began to

change. Did not know its mother; face devoid of all expression. Improved under treatment.

2. ADAMS, J. S., Morgan, Minn. A Case of Sporadic Cretinism. *Pediatrics*, April 1, 1898, Vol. 5, p. 287. Female. 5 years. An imbecile. Disease recognized when $3\frac{1}{4}$ years old. Treatment begun October 23, 1896. $\frac{1}{4}$ tablet desiccated thyroid t. i. d.; increased every 5th day by $\frac{1}{4}$ of tablet. "Marvelous change." Jan. 15, 1897, la grippe and bronchitis. March 1st treatment resumed. 2 weeks later trembling of lower jaw. Treatment discontinued for 2 weeks. Disagreeable symptoms did not return. Last 4 months improvement slow. From a state of idiocy to a condition where she walks awkwardly, speaks a little, tries to sing and whistle, does what she is told, dresses herself, etc. Parents not always strict about treatment.
3. BARBOUR, PHILIP F., Louisville. A Case of Sporadic Cretinism. *Pediatrics*, May 1, 1901, Vol. 11, p. 327. Female. 5 months. Typical symptoms of cretinism. Now 1 year old. Expression bright, playing with her little sister and in other ways showing her great and marked improvement.
4. BEARD, F. M. Cretinism, with report of a Case. *Practitioner and News*, Louisville, July 1, 1903.
- 5-7. BIERHOFF, FREDERICK, New York. The Recognition and Treatment of Early Myxedema in Childhood. *Jour. Am. Med. Asso.*, Nov. 19, 1898, Vol. 31, p. 1208.

Case I.—Female. $8\frac{1}{2}$ years. First seen January, 1897. A well-marked tumor which corresponds to the location of thyroid gland; first noticed 2 years ago, steadily growing, memory failing. April, 1898, tumor entirely disappeared. Treatment stopped. Tumor appeared. Treatment renewed.

Case II.—Male. 11 years. Hungarian. Seen 1897. Thyroid gland enlarged, has been so for 4 years. Mother has a goitre. Tumor diminished in size. Mother stopped treatment.

Case III.—Female. 14 years. Disease began 3 years ago. Slight thyroid enlargement; dull, had to be taken out of school. Disposition completely changed. Treated for 1 year. General physical condition improved. Mental condition improved slowly but steadily.

- 8-9. BOVAIRD, D., N. Y. Academy of Medicine. Two cases of Cretinism. *Pediatrics*, Oct. 15, 1901, Vol. 12, p. 313.

Case I.—4 years. Typical cretin. Under treatment 7 months. Did well.

Case II.—2 years. A less typical appearance of cretinism. Under treatment 3 weeks. Improving.

BURNETT. Case of Infantile Myxedema. S. G. Burnett, *Kansas City Med. Record*, August, 1900.

10. CARPENTER, H. B., Phila. A Case of Cretinism. *Archives of Pediatrics*, August, 1898, Vol. 15, p. 628. Female. 5 years. Presented

at Phila. Pediatric Soc. before 18 months' treatment. When first seen looked about 1 year old, could neither talk nor walk. Now she walks, talks, "and one would not think her a cretin."

11. COOPER, ST. CLOUD. A Case of Cretinism. *Memphis Med. Monthly*, June, 1899.
12. CLARKE, JAS. FRED., Fairfield, Iowa. *Jour. Am. Med. Asso.*, April 26, 1902, Vol. 38, p. 1102. 20 years. "A marked imbecile of typical cretinoid condition." Under treatment 9 months; gained 2% in height. "A marked transformation as to intelligence and physiognomy."
13. A Sporadic Case of Infantile Myxedema Resulting in a Cretinoid Condition. Clark and McGreer, *Med. Fortnightly* (St. Louis), May 26, 1902.
14. DAVISSON, ALEX. H., Phila. A Case of Cretinism showing the results of one year's treatment. *Phila. Med. Jour.*, Oct. 25, 1902, Vol. 10, pp. 602-604. Female. 3 years old. Normal until a "cold" at 4 months old. First seen, 2 years 1 month old. Thyroid gland could not be felt. Treatment stopped during a severe attack of measles. Marks of cretinism all less apparent than a year ago. Expression bright and cheerful.
- 15-17. DE WITT, J. P., Canton, Ohio. Sporadic Cretinism, with Report of Cases. *Cleveland Med. Jour.*, August, 1903, Vol. 2, pp. 365-368. 3 cases.

Case I.—Male. 2 years 4 months. Cretin from birth. Mental condition undeveloped; could not palpate thyroid gland. 2 years 10 months. Fine, healthy appearing boy. Bright as others.

Case II.—Female. 4 years. Since birth, undeveloped mentally. Could not feel thyroid gland. 8 months' treatment. Improved at once.

Case III.—Male. 7 years. Cousin to Case II. Developed physically, but not mentally. Under treatment 4 months. Developing mentally and has gone to school the last 2 months.
18. ENGELMANN, ROSA, Chicago. Sporadic Cretinism in Children, with Report of a Case. *Jour. Am. Med. Asso.*, February 14, 1903, Vol. 40, pp. 430-435. Male. 7 years. Myxedematous idiot, size of a 3-year-old child. First seen March 27, 1900. Grown 4½ in. Talks quite fluently. More intelligent.
19. FREEMAN, ROWLAND G., New York. Sporadic Cretinism. *Archives of Pediatrics*, August, 1900, Vol. 17, p. 595. Female. Ceased to grow at 5 months. Evidences of cretinism disappeared in 47 days.
20. GIVEN, E. E. W., Phila. Pediatric Soc. A Case of Cretinism. *Archives of Pediatrics*, February, 1899, Vol. 16, p. 120. 12 years. Born in Ireland. Mental condition equal to that of a child of 7 or 8. Treatment from November 29 to December 13, 1898. Improving. Dr. Given and Dr. Robertson not positive that it is a case of cretinism.

21. GRAHAM, CHRISTOPHER, Rochester Minn. Cretinism, with a Report of a Case of the Sporadic Variety. *Pediatrics*, March 15, 1900, Vol. 9, p. 228. Male, 5 years 8 months. Had never tried to walk, nor speak. Diagnosis of cretinism. First seen in June. Began to walk and talk during the winter. March, walks everywhere. Fairly bright and playful. Most marked feature is growth.
- 22-24. GORDINIER, HERMON C., Troy, N. Y. Sporadic Cretinism, with Report of 3 Cases. *N. Y. State Med. Jour.*, October, 1903, Vol. 3, pp. 391-395.

Case I.—Male. 9 years. Under treatment, has "shown no evidence, either mentally or physically, of the disease for over 18 months."

Case II.—Male. 7 years. Under treatment 1 year. "Marked improvement physically, but less mentally."

Case III.—Female. 20 years. No treatment until last winter, improved remarkably, both mentally and physically.

25. HARNILL, S. M., Phila. Pediatric Soc. A Case of Cretinism. *Pediatrics*, June 1, 1901, Vol. 11, p. 436. 6 months. Italian parentage. Typical cretin. Under treatment 3 weeks. "Appearance of the child has changed remarkably."
26. HERMANN, New York. Sporadic Cretinism. *Archives of Pediatrics*, August, 1900, vol. 17, p. 596. Age 7 weeks. 2 other children cretins. Described by Dr. Koplik in 1896. Baby under treatment.
27. HIRSCH, Baltimore. A Case of Cretinism. *Medical News*, April 25, 1903, p. 808, Vol. 32. Female. 5 years old. Dull and even idiotic. Improvement noted in 4 weeks. Could stand like a year old child. In 3 months, mental condition had markedly improved. More after 1½ years treatment like any other child of 6. Mental improvement the most striking thing.
28. KENT, S. T. A. Cretinism with report of Case. *Virginia Med. Semi-Monthly*, December 12, 1902
- 29-30. JELLINAC, San Francisco. *Jour. Am. Med. Asso.*, November 26, Vol. 31, p. 1304. Sporadic Cretinism. 3 Cases.
- Case 1.—Female. 4 years, 2 months. "Perfect picture of cretinism." No thyroid gland. Treatment begun August 26. Improving rapidly.
- Case II.—5½ years old. Much the same as first case. Under treatment 13 months. Marked improvement. Treatment begun July 26, 1897.
31. LEWIS, EMILY, New York. Congenital Cretinism. *Archives of Pediatrics*, February, 1898, Vol. 15, p. 134. 2 Cases. Brother and sister. Boy under constant observation and treatment since 15 months old. Treatment of infant sister began at 5 weeks and already in better condition than the boy.
32. LINDSAY, CLIFFORD. Case of Sporadic Cretinism. *Medical Standard* Chicago, May, 1902.

- 33-50. MACPHERSON, ALEX. Sporadic Cretinism in Ontario, Can. *Journal of Med. and Surgery*, IV, pp. 275, 1898. 17 Cases.
- 51-52. MILLET, CHAS. S., Brockton, Mass. Cretinism. *Boston Med. and Surg. Jour.*, October 10, 1901, Vol. 145, pp. 400-402. 2 Cases.
- Case 1.—Male. 9½ years. Typical Cretin since 1 year old. Under treatment 4 years. Grown 15 in. Does not yet put words together. Memory strangely lacking.
- Case II.—Female. 32 years. Disease began at 10 years. 4 years ago took thyroid treatment with decided improvement. Neglected it. Retrograded and now shows all the symptoms.
53. MILLS, WALTER SANDS, New York. Cretinism. *N. Y. Med. Jour.*, Feb. 22, 1902, Vol. 75, pp. 325-327. Female. 26 years. Had some form of thyroid treatment for two years, 1896-1898. First came to Dr. Mills, September, 1900. Mentally like a child of 6 or 7. Bad tempered and egotistical. November, 1901, improved physically. Not much improvement mentally. Better tempered. Case reported at length as it shows the tendency to retrograde when treatment is stopped. Also the value of treatment in older subjects.
- 54-55. MORSE, J. S. *Annals Gyn. and Pediatric*, Vol. 13, No. 7. Two Cases of Sporadic Cretinism.
- Case I.—Male. 2 years old. Russian parentage. Improved under treatment.
- Case II.—Female. 4 years old. Russian parentage. Treated for 3 months. Appetite failed and treatment discontinued. Child disappeared. Reviewed in *Archives of Pediatrics*, August, 1900, Vol. 17, p. 626.
56. NORBURY, FRANK P., Jacksonville, Ill. *Jour. Am. Med. Asso.*, April 26, 1902, Vol. 38, p. 1102. Male. 9 years. Patient seen by him in consultation. Fed on thyroidin. Result satisfactory and pleasing. Reported at *Tri-State Med. Soc.* (Iowa, Ill. and Mo.)
57. NEWELL, F. F., Burlington, Wis. A Typical Case of Sporadic Cretinism. *Med. Record*, December 5, 1903, Vol. 64, p. 896. Male. 13 years. Symptoms first appeared at 9 months. Dull, could not talk, walked in a clumsy way, under treatment 7 weeks. Results marvelous. Expression of face changed. Grew 1 in. Tried to walk. Took more interest in things.
58. PALMER, F. B. How much may we Expect from Treatment of Cretinism? *Jour. Med. and Science*, Vol. 4, No. 4 (1900), mentions several cases.
59. NOYES, WILLIAM B., New York. Sporadic Cretinism. *Archives of Pediatrics*, August, 1900, Vol. 17, p. 596. Female. First seen September 1, 1895. 2 years old and looked like a 6 months old baby. November 24, improvement wonderful, looks like a child 1 year old. October 17, 1896, treatment discontinued, and developing cretinoid symptoms. Child has learned to walk, trying to talk. Looks bright. Only suggestions of cretinism appears in the thick upper lip.

60. PACKARD, FREDERICK A., and ALFRED HAND, JR., Phila. A Contribution to the Pathological Anatomy of Sporadic Cretinism. *Am. Jour. Med. Sciences*, September, 1901, Vol. 122, p. 289. Male. 6 years. First seen December 7, 1897. Idiotic and undeveloped. Unable to walk or talk. 9 days after admission decided improvement noted. April, 1898. Bright and active "and in every way active quite naturally." November, 1898. Could stand. Learning to talk. Improved in appearance and intelligence. Died November 12, 1898. Ill one week.
61. SHIELDS, EDMUND, Cincinnati, Ohio. A Case of Cretinism following an Attack of Acute Thyroiditis, *New York Med. Jour.*, October 1, 1898, Vol. 68, p. 476. Female. 6 months old when disease began, now 7 years. Typical Cretin. 18 months treatment. Marked improvement.
62. PRICE, EZRA O. Case of Cretinism. *Indiana Med. Journal* (Oct. 1902).
63. SINKLER, WHARTON, Phila., Pa. A Case of Sporadic Cretinism, *Phila. Med. Jour.*, June 4, 1898, Vol. 1, pp. 1063-1065. Female. 30 years. Size of a child of 6 or 7 years. Case briefly reported at Am. Neurological Asso., 1896. Referred to by Dr. Osler at Congress Am. Phy., 1897. Worthy of full report on account of remarkable improvement. Gained 3 in. in height. 4 teeth were cut. Physical appearance much better and decidedly brighter intellectually.
64. PRESBURG. *Annals of Gynecology and Pediatrics*, May 1899.
- 65-66. TOWNSEND, C. A., Boston. A Case of Congenital Cretinism. *Boston Med. and Surg. Jour.*, Jan. 12, 1899, Vol. 140, p. 37.
Case I. Female. 2 years, 5 months. Shows all the appearances of a Cretin. Thyroid gland cannot be felt. Under treatment 2 weeks. Improved in appearance already.
Case II. 4 years. Unable to stand. Thyroid gland could not be felt. Under treatment two years. Marked improvement physically and mentally.
67. WALLS, FRANK X., Chicago. Cretinism and Thyroid Treatment, with Report of a Case. *Jour. Am. Med. Asso.*, Jan. 20, 1900, Vol. 34, p. 169. Female. 16 months. Treatment begun Dec., 1898. Child has lost all the marks of cretinism. Bright, pretty and intelligent.
68. WANS, M. H. Cretinoid Myxedema. *Western Med. Review*, May, 1901.
69. WHITE, FRANKLIN U., Boston. A Case of Sporadic Cretinism. *Boston Med. and Surg. Jour.*, March 16, 1899, Vol. 140, p. 257. Female. 2 years. Practically an idiot. No thyroid gland was felt, but there was no notable thyroid depression.
70. WOLFSTEIN, D. I., Cincinnati, Ohio. Infantile Myxedema. *Am. Jour. Med. Sciences*, March, 1898, Vol. 115, pp. 300-312. Female. 4 years, 6 months. Never walked. Looks like an imbecile. Thy-

roid extract for 1½ years. Walks well. Looks almost like any other child. Mental condition greatly improved. Intelligent and able to talk. Author says: "might justly be termed miraculous."

71. WRIGHT, J. C. Thyroid Extract in Cretinism. Report of a Case. *Austin Flint Med. Journal*, Mason City, Iowa, June, 1900.
72. KELLY, W. D., Crebinlson, St. Paul. *Med. Jour.*, 4, 1902, p. 324.
- 73-75. Three cases at Penna. Asylum for Feeble-Minded, Polk, Pa. Reported to writer by Supt. F. Moorhead Murdoch.

¹ A third case, a patient now under the care of Dr. Heard, of Pittsburgh, I saw this winter through his kindness. This boy was started on thyroid gland about five years ago by Dr. Pool, his physician at that time. He has gained about six inches in height, has developed from an anergic idiot to a docile, fairly active boy, and his intellect is now on a par with any boy of his present size. The height is now 46 inches; abdomen 26 inches, circumference of head 21 inches, from root of nose to external occipital protuberance 14 inches, and from ear to ear 9½ inches. The only other case that I have heard about in Western Pennsylvania was one verbally reported to me by Dr. T. J. Eltrich. In 1803, Harris, in his "Journal of Tour in Territory Northwest of Allegheny Mountains," comments upon the many cases of goitre and cretinism in this region, but in a later book (1817), it is asserted that "the goitre or swelled neck has disappeared; the cases which excited the apprehension of the stranger no longer exist to gratify his curiosity. In a few cases it was connected with cretinism, and in every case where the experiment was tried the swelling was removed by a journey and change of air."

² Pentzold and Stintzing: *Handbuch der Therapie*, 3rd Edit., VI. Vol., p. 347.

³ Ewald: *Diseases of the Thyroid, etc.*, Vol. 22, Nothnagel's Special Pathology.

⁴ Sachs: *Nervous Diseases of Children*.

⁵ Sommer (*Diagnostik der Geisteskrankheiten*) groups cretinism as a lack of development due to thyroid intoxication, and Kräpelin also includes it among the intoxications.

⁶ Brühl and Nawatzni: *Rachenmandel und Gehörorgane der Idioten*. *Münchener Med. Woch.*, 1903, No. 26, p. 1135. See also Weygandt, l. c.

⁷ Case of Martin Ebert, for instance, cited by Bayon.

⁸ Bayon: *Diagnose und Lehre von Cretinism*, p. 14, Würzburg, 1903.

⁹ First to call attention to calcareous deposits in blood-vessels.

¹⁰ Der Heutige Stand der Lehre von Cretinismus, 1904. *Sammlung Zwinglose Abhandlungen aus dem Gebiete der Nerven und Geisteskrankheiten*. In an article in the April number of the *Neurologisches Centralblatt* of this year, he shows how even recent writers have wrongly followed Virchow's views.

¹¹ Weygandt: l. c. Bayon does not believe this condition to be peculiar to cretinism, but claims to have noticed it in specimens from

patients with simple dementia and from normal sections from Broca's convolution.

¹² Osler's paper in 1893 may be said to be the first scientific paper upon cretinism written in this country, and served to arouse interest for the first time among American physicians on this subject.

¹³ Due according to Bruce and others to a toxemia of gastro-intestinal and bacterial origin, syphilis being a stimulant of the leucoblastic tissue, so that the natural defenses of the body against the invasion of bacteria are diminished.

¹⁴ Alex. Paris in *Archives de Neurologie* for February, 1904, attempts to explain epilepsy as being a condition whose symptoms are just the opposite of cretinism and therefore due to an opposite condition of the thyroid gland. His contentions are true in so far as goitre is rare in epileptics and epilepsy rare in goitrous or cretinous regions, that the administration of thyroid gland makes epilepsy worse and that we often find an increase in size of the thyroid gland at puberty, the menopause, etc., but that is as far as his explanation goes.

¹⁵ This incurvation is noticed in defects and imbeciles of all kinds in as great a proportion as among Mongolian idiots (Fennel, *Journal Mental Science*, January, 1904).

¹⁶ *Sporadic Cretinism in America*. Transactions Congress American Physicians and Surgeons, 1897.

¹⁷ *Op. cit.*

¹⁸ Bayon calls attention to the fact that in Bohemia this type of face is the normal race type.

¹⁹ Shuttleworth aptly says: "The facial expression of Mongolism is one of secret joy; of cretinism, one of secret sorrow."

²⁰ *Lancet*, April 16th, 1904, p. 1051.

²¹ Meige's classical description of Brissaud's type of infantilism, the myxedematous type, is practically as follows: "Full round face, fleshy, protruding lips, small nose, expressionless face, thin, tender skin, slight growth of hair, long cylindrical body, protuberant stomach, excessive amount of skin, rudimentary sexual organs, thin high voice, small thyroid, childish intelligence." In this type dwarfism is not a fundamental sign as in the other type of infantilism (of Lorain). See Ferrannini, *Archiv für Psychiatrie*, 1904, Bd. 38, p. 209, and Brissaud, *Lecons sur les maladies nerveuses*.

HYDROTHERAPEUTICS.

*By George T. Tuttle, M. D.,
McLean Hospital, Waverly, Mass.*

The use of water in the treatment of disease has received a fresh impetus in this country in recent years largely through the efforts of Dr. Simon Baruch, and hydrotherapeutic apparatus has been and is still being installed in many private sanatoria and in public hospitals for nervous and mental diseases. Whether it is a fashion, a fad which in time will disappear, remains to be seen. It must be remembered, however, that hydrotherapy has been used much more extensively in continental Europe than in this country and that the use of heat and cold, in some form or other, in the treatment of disease, is as old as the practice of medicine. The permanence of the present movement will depend, partly on its value as demonstrated by many careful observers, but perhaps quite as much on the accuracy with which it is prescribed by those who attempt to use it. Each one must acquire for himself a knowledge of the proper use of this agency without which he employs it in a routine way, without a proper selection of the patients or adaptation to the individual of the procedure employed.

This report is a record of the experience of the McLean Hospital where hydrotherapy has been actively, though more or less empirically, used since the spring of '99.

For a few months, previous to the installation of a regular apparatus in the bathrooms of the gymnasium for women in June, '99, such methods were employed as are adapted to the bedroom or the ordinary bathroom, viz., cold ablutions; the dry pack (taking the place of the hot air bath) followed by the half bath, cold affusions, or the dripping sheet; and cold packs. In all cases the temperature of the water at first was 85° and

was gradually reduced day by day to 60° F. By the use of these one can obtain much of the beneficial effect of hydrotherapy without complicated and expensive apparatus. Since installation of the apparatus the following baths have been given in addition to those above mentioned with these limits of temperature, duration and pressure:

Hot air bath, 180°-190°, 3-10 minutes.

Circular douche, 100°-90°, $\frac{1}{2}$ to 1 minute, 15 to 38 lbs.

Fan douche, 85°-56°, 10 to 30 seconds, 15 to 30 lbs.

Jet douche, 75°-56°, 10 to 30 seconds, 15 to 30 lbs.

Scotch douche (either fan or jet) 110° alternating with 60°, $\frac{1}{2}$ to 3 minutes, 15 to 30 lbs.

An attempt has been made to select from these, or to make combinations of, what would be most beneficial for the individual patient. The effect desired has been tonic or stimulating and careful attention has been paid to obtaining a good reaction, that is, a comparatively permanent return of the blood to the surface vessels. The dry pack or hot air bath is used first in any combination, dilating the surface vessels. The immediately subsequent application of cool or cold water causes them to contract, and there is a diminished blood supply in the skin. The impact of the water delivered under pressure tends to aid its return by reflex stimulation of the heart. There is no doubt that cold applications to a large part of the surface of the body at once increases the amount of blood in the internal organs. If the heart is strong enough immediately to return this blood to the surface, there has been a healthful flushing of these organs and theoretically an increased activity. If a reaction is not established, a dangerous congestion may result. The problem is to adapt the temperature, time and pressure to the strength of the individual that the reaction may be as perfect as possible. People differ in regard to their ability to respond and there is also a variation in the same person at different times according to his condition, so that even healthy people should use caution in taking these baths when they are tired. Cases of chronic tire require the most careful supervision in order to avoid doing them harm. Those who are physically strong usually experience a sense of vigor and well-being after the most active measures, which feeling may last throughout the day, or in some be followed by drowsi-

ness in an hour or two. The neurasthenic, if the bath is too vigorous, complains of being tired or completely exhausted, and will often lie down for an hour or two, the testimony being something like this: "They use me all up," "I was all tired out," "I could scarcely get back to my room," etc. Effort was made at first to obviate this feeling of exhaustion by giving the baths less frequently, perhaps three times a week, but it has been found better to raise the temperature, lower the pressure, and above all to shorten the time, continuing the baths daily. Considerable weight should be given to the testimony of patients with regard to their feelings after the baths, and if they complain of exhaustion, milder measures should be prescribed. The almost universal testimony of neurasthenics seems to conflict with the claim that these baths increase the capacity for work. Baruch says that cold applications increase, and warm decrease it. This statement is based upon the ergograph experiments of Vinaj and Maggiori in '92 and '93, who give fatigue curves showing a wonderful increase of work done after a cold plunge at 50° for 15 seconds, a gradually cooled bath at 96° to 68° for five minutes, a wet pack of two hours followed by a cold dip, a rain douche (50°), and a Scotch douche (98° and 50°),—following all these there is a great increase in working capacity; after the second it is increased three-fold. Vinaj and Maggiori show also by experiments that cold applications restore the working capacity after fatigue. It is claimed that warm applications also have the effect of increasing the capacity for work, and of restoring it after fatigue, if they are combined with some mechanical irritation, like friction or the impact of water delivered under pressure, which counteracts the enervating effects of the temperature. The statement then is that only the uncomplicated, simple, warm applications reduce the capacity for work while all the others increase it, the cold, by virtue of their temperature, the warm, to a less degree in spite of their temperature, the effect of which is overcome by mechanical irritation.

In order to ascertain whether baths as given at the McLean Hospital really increase the capacity for work, four series of experiments have been made on three patients and a nurse, all physically strong men. Each pulled on the ergograph to exhaustion twice with an interval of fifteen minutes, then went

ERGOGRAF EXPERIMENTS.—EFFECT OF BATHS ON CAPACITY FOR WORK.

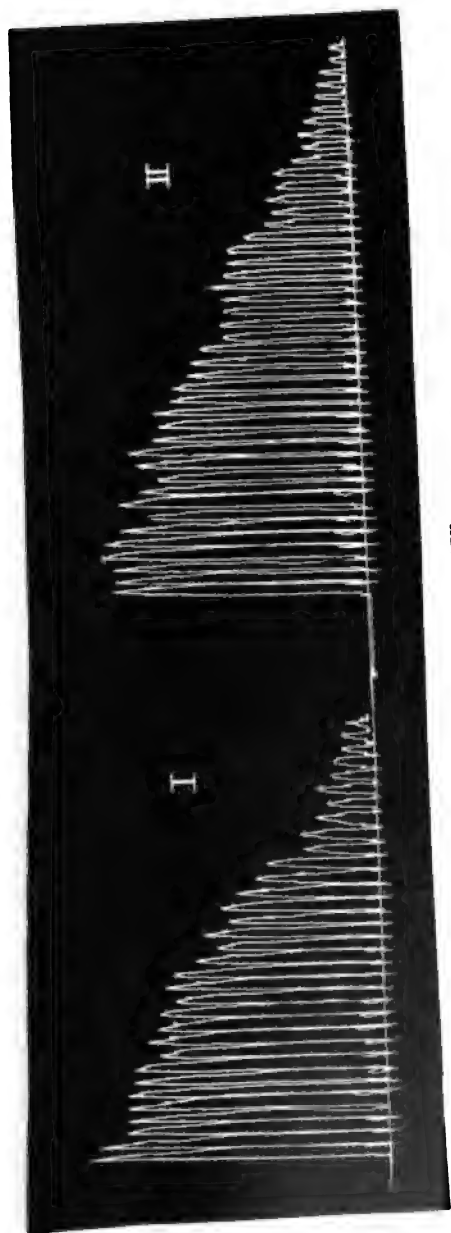
Case.	1902.	Pull Number.		Total Height.		Pull Number.		Total Height.		Gain or Loss.	Gain or Loss.	
		1st Trial.	2nd Trial.	1st Trial.	2nd Trial.	3rd Trial.	4th Trial.	3rd Trial.	4th Trial.			
I	March 18	56	55	1135	1290	42	44	943	1060	-25	-392	A bath was given between the 2nd and 3rd trials on March 18 and 19. Bath.—Hot after 1000, 0 minutes (pre-splinture). Scotch douche, 100° 15 sec., 28 lbs.; fan douche, 60°, 15 sec., 28 lbs. pressure; fan douche, 60°, 15 sec., 28 lbs. Bath as for case I, between 2nd and 3rd trials on March 20, 22 and 23.
	" 19	43	47	980	1229	44	20	500	808	-7	-330	
	" 22	61	44	1531	1197	57	47	1311	1109	-1	-306	
	" 23	49	38	1198	895	47	40	1158	1122	+4	+102	
	" 29	51	58	1275	1473	66	63	1508	1310	+30	+66	
	April 10	60	55	1438	1330	68	57	1430	1406	-	-143	
II	March 20	47	44	1082	1127	37	35	1038	866	-19	-190	Bath as for case I, between 2nd and 3rd trials on March 20, 22 and 23.
	" 22	33	44	1068	1346	35	35	1097	1035	-7	-180	
	" 23	26	38	1035	1054	37	35	1050	928	+2	-121	
	" 24	35	39	1114	1163	35	40	1005	1112	+1	-160	
	" 28	36	33	1054	946	33	35	1082	1016	+4	+126	
	April 7	38	38	1158	1112	41	42	1083	1183	+9	+28	
III	April 8	44	43	1356	1334	45	46	1536	1298	+4	-60	Bath between 2nd and 3rd trials on Apr. 23 and 24. Bath.—Hot air, 100°, 5 minutes; circuit-douche, 97° to 90°, 1 min., 28 lbs.; jet douche, 70°, 15 sec., 28 lbs.; fan douche, 60°, 15 sec., 28 lbs.
	" 9	41	43	1147	1160	41	43	1223	1098	+2	+14	
	" 10	38	42	1186	1214	44	43	1250	1200	+7	+27	
	April 23	43	43	1745	1732	43	42	1868	1509	-1	-340	
	" 24	42	42	1716	1631	45	43	1637	1477	+4	-233	
	" 21	44	45	1833	1630	44	38	1804	1680	-7	-259	
IV	" 22	42	43	1876	1891	43	44	1816	1744	+2	-207	Bath as for Case III, between 2nd and 3rd trials on April 23 and 24.
	" 23	51	46	1576	1620	56	58	1754	1664	+15	+418	
	" 24	44	48	1564	1681	59	51	1935	1721	+18	+411	
	" 21	46	48	1687	1593	51	52	1971	1763	+14	+185	
	" 22	46	50	1687	1698	51	52	1971	1736	+14	+185	
	" 22	46	50	1687	1698	51	52	1971	1736	+14	+185	

to the gymnasium for a bath, returned immediately to the laboratory and again pulled to exhaustion twice, with the same interval of time. For purposes of control the same men repeated the experiment on another day in the same way without the bath. As shown by the third and fourth curves there was a slight loss of capacity for work in three cases after the bath and an increase in the fourth; on the days when no bath was given there was sometimes a gain, sometimes a loss. If the results show anything they indicate a lessened capacity after the bath. Certainly they do not show the great increases above mentioned, although the baths given were not essentially different from those of Vinaj and Maggiori.

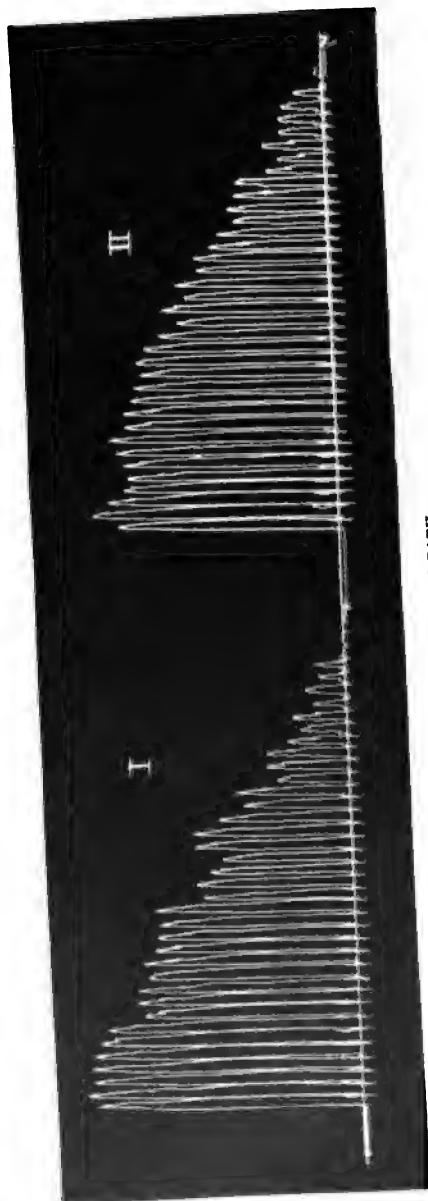
Observations were made on the variations in pulse rate, respiration and temperature during the various stages of an ordinary bath, which show that they all vary directly with the temperature to which the individual is subjected, with the exception that lowering of the pulse rate by cold applications is somewhat delayed by the mechanical irritation of the impact of the water in the douche, and also that the sudden application of cold douches causes considerable irregularity in the rhythm and depth of respirations, but they both finally drop under the influence of a lower temperature, and they drop much more rapidly than they were raised by heat. The fall in pulse rate is sometimes very sudden,—in one case, in 70 seconds there was a change in the rate of 60 beats; in another 66 in the same time; in a third, 72 in 40 seconds. The duration of the hot air bath was from 6 to 10 minutes; the patient began to perspire in from 2 to 9 minutes; the pulse rate increased to 120 or 130 during the hot air bath, and dropped in some cases to 60 or lower in from 40 seconds to 1 1/3 minutes. The respirations during the hot air bath increased from 5 to 14 a minute, and immediately returned to the normal point after the douches. The temperature taken in the mouth was raised from 2° to 1.2° by a hot air bath (180°-190°) of from 7 to 15 minutes' duration, the rise varying in different persons and in the same person on different days. It was found to be lowered somewhat immediately after an application of cool or cold water, but its fall was not so rapid as in the case of pulse rate and respiration.

There is a change in the blood pressure under the influence

FATIGUE CURVES OF CASE II.

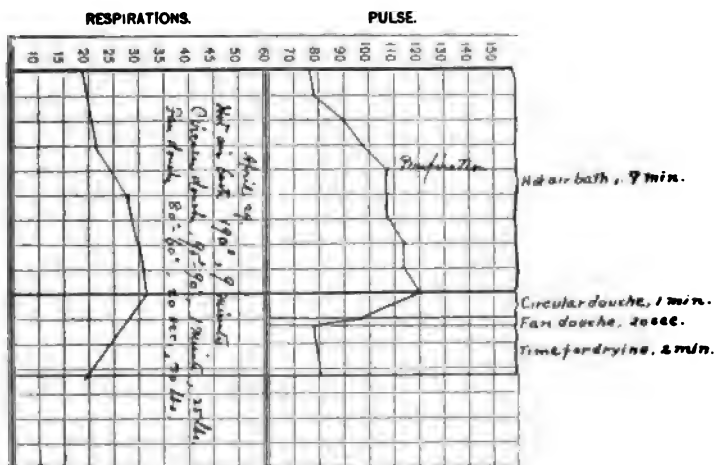
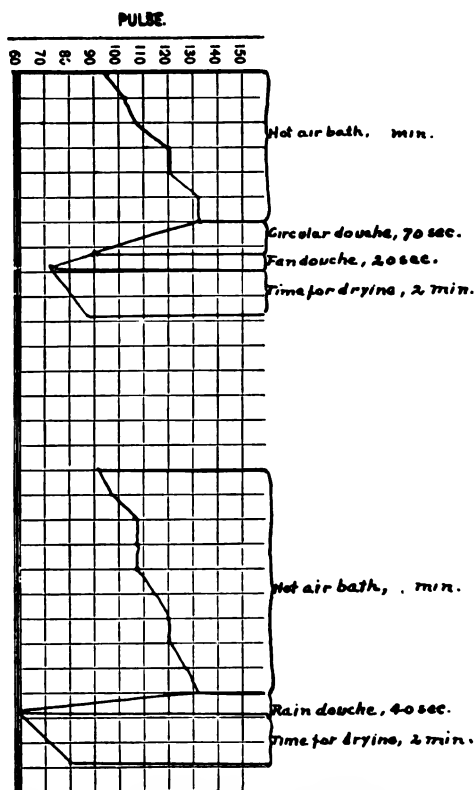


BEFORE THE BATH.



AFTER THE BATH.

EFFECT OF BATHS ON PULSE AND RESPIRATION.



of hot and cold applications which is rapid and of short duration. It varies inversely with the temperature. Hot applications lower it, cold applications raise it. I have used at different times the instruments of Fitz, Gartner and Riva Rocci. Precautions were taken to eliminate so far as possible other causes of variation such as the time of day, position, exercise, fatigue, and emotional disturbances. All the observations were made on women,—patients and nurses.

Notwithstanding considerable variation in the results, there is no doubt that the pressure falls while the patient is in the hot air bath and quickly rises to the normal again during the subsequent application of cool douches. Below is given a table showing the blood pressure of different persons, or the same persons at different times, before the bath, while the patient is in the hot air cabinet and immediately after the cool douche. Each number, except the lowest, is the average of at least ten observations. This sudden, and, in some cases, material fall of the blood pressure is no doubt the reason why some people faint in the hot air cabinet, and it should be used cautiously with weak neurasthenics and with elderly people, especially those who show an arterio-sclerosis.

BLOOD PRESSURE IN MM. HG.

Before the Bath.	While in Hot-Air Cabinet.		After Douche.
	Average.	Lowest.	
125	117	110	120
123	115	108	122
107	108	108	115
118	113	106	114
114	105	98	114
118	113	112	111
115	106	97	118
116	105	94	116
110	100	95	112
133	118	110	129
118	112	105	125
132	117	106	134
125	100	91	124
125	112	108	124
126	103	98	126
149	137	122	142
138	132	125	143
134	116	108	133
133	120	110	130
126	121	114	134

Considerable importance has been attached by Dr. Baruch to the fact that certain procedures are followed by an increase in the number of red and white cells in the blood taken from the lobe of the ear. A hot air bath of 10 minutes followed by a jet douche of five seconds caused an increase of 700,000 red and 1,500 white cells. A tub bath of 80° for ten minutes was followed by exactly the same increase. This we have been unable to confirm. Dr. Guy G. Fernald of the hospital staff has made many counts in a very careful way before and again at varying intervals after the baths, taking blood from the lobe of the ear, but without any uniformity of result. Sometimes there has been an increase, again a diminution of both red and white cells, sometimes an increase of one and a diminution of the other. There is no doubt that after a cold bath of from 10 to 15 minutes' duration, while the individual is thoroughly chilled, the blood in the surface vessels will contain an increase of cells. This does not show a more active circulation of cells which have been driven out from their hiding places, so to speak (Winternitz). It seems more probable that it is merely a local affair, an irregular distribution of cells and plasma, due to a constriction of the surface capillaries under the influence of cold (Ewing). These capillaries are some of them so small that the cells can only go through singly under normal conditions, and when strongly contracted they may not permit their passage at all, the plasma then running on, leaving many cells stranded. Thus for the time being there is a larger proportion of cells in the blood of the skin. Instead then of causing a more active circulation of cells, the effect is just the opposite in the surface vessels and it is a disadvantage,—a serious one if long continued. All observers agree that it is a temporary affair which disappears within 15 or 20 minutes, or as soon as a reaction is established. Warm baths cause a contrary effect.

I present a few careful observations showing the number of red and white cells before the bath, at the end of the hot air bath, 2 minutes after the douche, and 1½-2½ hours after the bath, with a description of the bath in each case.

Considerable work has been done by various observers to determine the effect of hot and cold baths on tissue changes of the body. While there is some difference in results, most

EFFECT OF BATHS ON THE NUMBER OF RED AND WHITE BLOOD CELLS.

Case.	Time.	Before the Bath.			End of Hot Air Bath.			2 Minutes after Douches.			$1\frac{1}{2}$ to 2 $\frac{1}{2}$ hrs. after Bath.			Bath.
		Red.	White.	Ratio.	Red.	White.	Ratio.	Red.	White.	Ratio.	Red.	White.	Ratio.	
I	10 A. M.	4,914,500	9,154	854				4,676,600	7,690	613				Hot Air, 172° 3 m.; circular, 95° 40', 50 sec., 32 lbs.; fan, 75° 40', 30 sec., 32 lbs.
II	"	5,253,000	6,300	826				4,817,000	7,440	648				Hot Air, 186° 8 m.; circular, 95° 40', 45 sec., 30 lbs.; fan, 85° 46', 25 sec., 30 lbs.; jet, 65°, 10 sec., 35 lbs.
III	"	4,720,000	9,211	512				4,779,000	8,911	536				Hot Air, 190° 16 m.; circular, 95° 40', 1 m., 32 lbs.; fan, 65° 30 sec., 32 lbs.; jet, 65°, 0 sec., 35 lbs.
III	"	4,785,605	10,600	451	5,047,942	8,584	588	4,555,410	8,979	500	4,658,841	7,875	502	Hot Air, 188° 10 m.; circular, 95° 40', 1 m., 32 lbs.; fan, 70° 20 sec., 30 lbs.; jet, 70°, 15 sec., 35 lbs.
III	"	4,861,841	8,666	563	4,648,507	9,892	470	4,673,903	10,444	447	4,539,937	10,346	440	Hot Air, 190° 11 m.; circular, 95° 40', 1 m., 35 lbs.; fan, 70° 40', 30 sec., 35 lbs.; jet, 60°, 15 sec., 35 lbs.
IV	"	4,375,000	5,995	780	4,322,000	5,477	790	4,189,000	5,604	736				Hot Air, 188° 14 m.; circular, 95° 40', 35 sec., 32 lbs.; fan, 85° 46', 30 sec., 32 lbs.; jet, 60°, 30 sec., 30 lbs.
V	"	4,810,000	7,385	668	4,639,000	9,020	514	4,400,000	9,203	450	4,637,000	8,121	570	Hot Air, 186° 17 m.; circular, 95° 40', 30 sec., 30 lbs.; fan, 70° 30 sec., 30 lbs.; jet, 70°, 0 sec., 25 lbs.
V	"	4,634,683	7,300	640	4,406,163	6,298	703	4,178,722	7,138	564	4,123,793	7,249	568	Hot Air, 180° 12 m.; circular, 95° 40', 30 sec., 35 lbs.; fan, 65° 30 sec., 35 lbs.; jet, 65°, 0 sec., 35 lbs.
VI	"	4,712,661	9,102	517	5,067,185	8,594	581	4,987,254	7,698	651	4,995,529	7,462	671	Hot Air, 180° 8 m.; circular, 95° 40', 45 sec., 30 lbs.; fan, 70° 40', 35 sec., 30 lbs.
VII	"	5,600,114	5,969	938	5,100,741	5,368	950	5,455,961	6,122	880	5,594,170	8,606	645	Hot Air, 188° 19 m.; circular, 95° 40', 40 sec., 32 lbs.; fan, 60° 45', 30 sec., 30 lbs.; jet, 65°, 5 sec., 35 lbs.
VIIA	"	5,328,630	7,038	754	5,069,086	6,567	740	5,020,383	7,568	676	4,983,524	8,121	601	Hot Air, 187° 8 m.; circular, 95° 40', 45 sec., 32 lbs.; fan, 70° 46', 30 sec., 32 lbs.; jet, 65°, 15 sec., 35 lbs.

published reports show an increase of both constructive (?) and destructive metabolism. (The principals and Practice of Hydrotheraphy, by Simon Baruch, M. D.: Digest of Metabolism Experiments, by Atwater and Langworthy, 1898.) In none of these experiments was a uniform or fixed diet given. The total amount of nitrogen excreted is a measure of the metabolism of the body only when the nitrogen of the food is taken into consideration.

Observations have been made by Dr. Otto Folin, in the laboratory of the McLean Hospital, to determine whether such baths as we are giving cause any change in metabolism. Nine persons were given a uniform diet adapted to the capacity of the individual, containing a known amount of nitrogen. After this diet had been continued for two days the urine was collected for each twenty-four hours and analyzed with the results shown in the following tables. After three or four days, baths were given for about the same period of time. The results are practically negative.

While these experiments seem to show that there is no increase of metabolism from such hydriatic procedures as we employed, they do not show that if the patient were free of the restriction of a fixed diet he would not eat more, gain in weight, and eliminate more nitrogen during the bath period. Our records show that of 216 consecutive cases who were given similar baths, 168 gained in weight and 48 lost. The gain was from $\frac{3}{4}$ to $33\frac{3}{4}$ and the loss from $\frac{1}{2}$ to $22\frac{1}{2}$ lbs. It has been noticed that the gain is usually preceded by an initial loss of a pound or two during the first week of the baths.

Cold packs have been given at temperatures between 85° and 60° with a duration of from $\frac{1}{2}$ to 2 hours. If often changed, they reduce the temperature of the body; if long continued, they raise it. They have been found exceedingly useful in cases of maniacal excitement for their soothing and even hypnotic effect.

While my observations thus far do not sustain some of the claims made for hydrotherapy, there are sufficient reasons for its use. Not the least of these is the fact that it can be adapted to the physical condition of any patient. It seems to act like exercise on the circulation, respiration, blood pressure and temperature, without active muscular exertion on the part of the

EFFECT OF BATHS ON METABOLISM AS SHOWN BY ANALYSIS OF THE URINE.

	1902.	CC. in 24.	Sp. Gr. 1.0—	Total N ₂ gms.	Total P ₂ O ₅ gms.	Total S O ₂ gms.	Ratios.				Gain or Loss in Weigh't, gms.	Days of Bath.	Remarks.
							100 N ₂ :						
							P ₂ O ₅	S O ₂	100 S O ₂	P ₂ O ₅			
Man, 26 years.	Mch. 13	1300	20.	16.2	3.35	2.97	20.7	18.3	113.		No bath	Daily diet:—Eggs (with shells) 585 gm.; breast of chicken, 50 gm.; bread, 200 gm.; butter, 75 gm.; sugar, 60 gm.; salt, 5 gm.; apple, 150 gm.; milk, 800 cc.; water, 1000 cc. Total water in food and drink about 2300 cc. Total N ₂ about 17.2 gm. Total fuel value in calories about 2300.	
	" 14	960	24.5	15.4	3.02	3.10	19.6	20.1	97.4		" "		
	" 15	1100	20.	14.5	2.86	2.93	19.7	18.5	103.7		" "		
	" 16	1060	21.5	13.7	3.13	3.01	19.9	19.3	104.	+220	" "		
Totals.	" 17	470		61.8	12.36	11.76					" "		
	" 17	1070	18.	17.8	3.37	3.39	19.	19.	96.4		Bath	Total water in food and drink about 2300 cc. Total N ₂ about 17.2 gm. Total fuel value in calories about 2300.	
	" 18	975	24.	15.6	3.41	3.15	21.8	20.2	106.2		" "		
	" 19	1245	20.5	16.2	3.16	2.80	19.5	17.9	109.		" "		
	" 20	5100	20.	66.1	13.12	12.46	20.5	19.5	105.		" "		
	" 21	1365	20.5	16.8	3.34	2.75	19.9	16.1	123.		No bath		
	" 22	1040	23.5	15.3	2.77	2.90	18.1	19.	96.5		" "	Bath:—Hot Air, 190°, to perspiration; Scotch douche, 105° alternating with 60°, 1 minute, 80 lbs. pressure; fan douche, 53°, 15 sec., 30 lbs. Daily Diet:—Tomato soup, 300 cc.; steak, 50 gm.; breast of chicken, 40 gm.; roast lamb, 40 gm.; potato, 220 gm.; bread, 150 gm.; butter, 75 gm.; jelly, 75 gm.; sugar, 40 gm.; salt, 5 gm.; orange, 1 baked apple; milk, 800 cc.; water, 1000 cc.	
	" 23	1460	19.	63.7	12.62	11.57	21.7	19.	116.4	+150	" "		
	" 24	4745			12.84						" "		
	" 25	1300	25.	16.9	3.74	2.41	22.1	20.2	109.7		Bath		
	" 26	600	23.	14.6	3.04	2.83	20.8	19.4	107.4		" "		
	" 27	600	27.	15.3	3.25	2.67	21.9	19.4	104.4		" "	Daily Diet:—Tomato soup, 300 cc.; steak, 50 gm.; breast of chicken, 40 gm.; roast lamb, 40 gm.; potato, 220 gm.; bread, 150 gm.; butter, 75 gm.; jelly, 75 gm.; sugar, 40 gm.; salt, 5 gm.; orange, 1 baked apple; milk, 800 cc.; water, 1000 cc.	
	" 28	1035	26.	62.4	12.69	12.06	16.7	19.	96.6	+150	" "		
	" 29	4115			12.95	12.17					" "		
Woman, 26 years.	Mch. 20	1000	19.	12.76	2.41	2.83	22.1	20.2	109.7		Bath		
	" 21	1800	13.5	13.10	3.04	2.83	20.8	19.4	107.4		" "		
	" 22	1300	17.	33.09	2.19	1.86	17.9	15.2	118.		Bath	Daily Diet:—Tomato soup, 300 cc.; steak, 50 gm.; breast of chicken, 40 gm.; roast lamb, 40 gm.; potato, 220 gm.; bread, 150 gm.; butter, 75 gm.; jelly, 75 gm.; sugar, 40 gm.; salt, 5 gm.; orange, 1 baked apple; milk, 800 cc.; water, 1000 cc.	
	" 23	4820			2.19	1.86	17.9	15.2	118.		" "		
	" 24	960	18.	11.75	1.88	1.87	16.	15.9	100.9	+397	No bath		
	" 25	1360	24.	13.98	2.01	2.06	15.5	15.03	103.	+425	" "		
	" 25	3400	16.	38.63	6.13	5.94	15.7	14.9	105.5	-113	" "		

EFFECT OF BATHS ON METABOLISM AS SHOWN BY ANALYSIS OF THE URINE. — Continued.

	1906	CC. in 240.	Sp. Gr. 1.0—	Total N ₂ grms.	Total P ₂ O ₅ grms.	Total S O ₂ grms.	Ration.			Gain or loss in weight, grms.	Days of Bath.	Remarks.
							100 N ₂ :					
							P ₂ O ₅	S O ₂	100 SO ₂ :			
Man, 40 years.	Feb. 25	1240	17.5	11.42	1.06	1.78	17.8	15.6	111.1	+57	No Bath	Total water in food and drink about 2800 cc.; total N ₂ about 14 gm.; total fuel value in calories, about 2250.
	" 27	1500	16.	12.40	2.13	1.95	16.7	15.8	109.2	—	" "	Bath :—Hot air, 174° 5 m.; circular, 95° 50 sec., 26 lbs.; fan, 83° 75° 25 sec., 25 lbs.; jet, 63° 5 sec., 50 lbs.
	" 28	4185	16.	36.57	6.06	5.50	15.7	15.1	104.1	+142	" "	Daily diet :—Tomato soup, 350 cc.; steak, 100 gm.; breast of chicken, 75 gm.; boiled ham, 50 gm.; potato, 400 gm.; bread, 175 gm.; eggs, 140 gm.; butter, 75 gm.; corn starch, 200 gm.; apple, 2 bananas; milk, 900 cc.; water, 1125 cc.
	" 29	1240	17.	12.61	1.96	1.89	15.7	15.	104.8	+234	Bath	Total water in food and drink about 3500 cc.; total N ₂ about 19 gm.; total fuel value in calories, about 2803.
	" 30	1640	19.	12.35	2.21	1.85	18.	15.1	119.9	—85	" "	Bath :—Hot air, 190° to perspiration; circular, 95° 40° 1 m., 30 lbs.; jet, 70° 50 sec., 30 lbs.; fan, 60° 25 sec., 50 lbs.
	" 31	1000	20.	11.73	2.16	1.76	18.4	15.	122.4		" "	Daily diet :—2 kilos* liquid food with 900 cc. water extra.
	" 16	3380	20.	36.59	6.35	5.50	18.7	16.8	110.9		" "	
	April 15	2125	20.5	20.11	8.76	8.267	20.	16.5	121.		No bath	
	" 17	1650	21.5	18.60	8.73	8.06	20.	16.5	121.		" "	
	" 19	2060	19.5	19.90	8.70	8.17	18.	15.8	117.		" "	
Man, 27 years.	" 18	1450	23.	19.53	3.62	3.21	18.5	16.4	119.9	+907	Bath	
	" 19	1380	19.	19.0	3.61	2.97	19.1	14.9	123.4		" "	
	" 20	1640	23.	20.70	3.69	3.42	17.7	16.4	123.4		" "	
	" 21	4950	23.	60.82	11.12	9.60	17.7	16.4	123.4		" "	
	Dec. 13	1260	26.	19.7	4.77	3.87	24.2	19.6	123.4		No bath	
	" 14	1350	24.	19.96	4.92	3.85	24.7	19.9	128.5		" "	
	" 15	1380	23.	18.51	4.05	3.50	23.6	18.9	129.1		" "	
	" 16	1100	27.	17.06							" "	
	" 16	5060		76.15							" "	

* Liquid food :—500 cc. whole milk; 200 cc. Cream (18-25% fat); 400 gm. Eggs (white and yolk); 50 gm. Sugar; 100 gm. Horlick's Malted Milk; 6 gm. Salt (70 cc., of a 10% sol.); water enough to make 5 liters. This contains about 19 gm. N₂, 5.75 gm. P₂O₅, and 2.70 gms. S O₂.

EFFECT OF BATHS ON METABOLISM AS SHOWN BY ANALYSIS OF THE URINE.—Continued.

1902	CC. in 24°.	Sp. Gr. 1.0°.	Total N ₂ gms.	Total P ₂ O ₅ gms.	Total S O ₂ gms.	Ratios.			Gain or loss in weight, gms.	Days of Bath.	Remarks.		
						100 N ₂ :							
						P ₂ O ₅	S O ₂	100 S O ₂ :					
Dec. 17 " 18 " 19 " 20 " 20	1360 1325 1060 1040 4765	24. 23. 23. 27. —	18.26 17.88 18.02 17. 71.16	4.59 4.57 4.14 4.12 —	3.50 3.43 3.53 3.18 —	35.1 23.5 24.9 24.3 —	19.4 19.2 19.8 18.7 —	120. 133. 116. 129. —	— — — — —	Bath " " " "	Bath:—Hot air, 190°, 5 minutes; circular, 98°-50°, 45 sec., 25 lbs.; fan, 43°, 15 sec., 25 lbs.; jet, 75°, 10 sec., 25 lbs.		
	Man. 27 years.	1903.											
		Jan. 9	1700	16.	15.18	3.06	2.97	20.2	19.6	103.3	-40	No bath	Daily diet:—2 kilos liquid food with 900 cc. water extra.
		" 10	690	30.	14.8	3.42	3.11	23.1	20.1	110.	-100	"	
		" 11	1407	19.	15.5	3.73	2.98	24.5	18.9	137.	-180	"	
" 11		3995		45.48	10.27	9.06					"		
" 12		1135	25.	15.6	3.73	3.24	24.	20.8	115.	-140	"		
" 13		1425	19.	15.6	3.73	3.12	24.3	20.	121.4	+160	"		
" 14		1170	24.	16.4	3.46	3.24	21.1	20.	105.	+400	"		
" 14		3670		47.6	10.99	9.65					"		
" 15		1400	20.	16.13	3.88	3.23	23.9	20.	119.	-300	Bath	Bath:—Circular, 97°-50°, 1 m., 30 lbs.; fan, 60°, 15 sec., 30 lbs.; jet, 70° 15 sec., 30 lbs.	
" 16		1450	23.	16.61	3.86	3.11	23.2	18.7	124.	-100	"		
" 17		1660	17.	16.92	3.75	3.39	22.2	20.	110.6	+200	"		
Man. 28 years.	" 17	4510		49.66	11.47	9.73							
	" 18	935	26.	15.42	3.74	3.18	24.2	20.6	118.	+900	No bath		
	" 19	1570	19.	10.45	3.71	3.11	22.5	18.8	119.	-40	"		
	" 19	1125	22.	14.67	3.95	3.07	23.5	20.6	128.7	+210	"		
	" 20	8630		46.77	11.40	9.36					"		
	Jan. 26	1025	24.	14.81	3.88	2.81	22.2	19.	117.		No bath	Daily diet:—2 kilos liquid food with 900 cc. water extra.	
	" 27	1545	10.	14.32	3.43	2.72	24.1	19.1	126.		"		
	" 27	2670		29.03	6.81	5.63					"		
	" 28	1600	16.	16.22	4.16	3.17	25.0	19.5	131.	+730	"		
	" 29	1275	23.	16.88	3.64	3.24	21.6	19.2	112.	-225	"		
	" 29	2675		33.10	7.80	6.41					"		
	" 30	1100	26.	16.54	3.74	2.98	22.6	17.7	127.	+450	Bath	Bath:—Hot air, 190°, 5 m.; circular, 98°-90°, 45 sec., 25 lbs.; fan, 70°, 15 sec., 25 lbs.; jet, 80°, 10 sec., 25 lbs.	
	" 31	1430	18.	15.83	3.63	3.10	24.3	19.6	124.		"		
	" 31	2555		32.37	7.67	6.03					"		

EFFECT OF BATHS ON METABOLISM AS SHOWN BY ANALYSIS OF THE URINE.—Continued.

	1908.	CC. in 24 ^h .	Sp. Gr. 1.0—	Total N ₂ gms.	Total P ₂ O ₅ gms.	Total S O ₂ gms.	Ratios.				Gain or loss in weight, gms.	Days of Bath.	Remarks.
							100 N ₂ :			100 S O ₂ :			
							P ₂ O ₅	S O ₂	P ₂ O ₅				
Man. 57 years.	Jan. 27	1550	20.	16.76	3.94	8.18	23.4	18.7	126.	126.	-40	No bath	Daily diet:—2 kilos liquid food with 900 cc. water extra.
	" 28	1395	19.	15.08	3.71	8.12	23.2	18.5	119.	119.	+280	"	
	" 29	1475	19.	15.23	3.23	8.13	24.1	19.6	122.7	122.7		"	
	" 30	1570	20.	16.49	3.80	8.03	28.5	18.7	126.	126.	-170	Bath	Bath:—Circular, 98°-100° 45 sec., 20 lbs.; fan, 10° 15 sec., 20 lbs.; jet, 88° 10 sec., 20 lbs.
	Feb. 1	1450	20.5	16.68	3.91	8.18	28.5	19.	123.	123.	-170	"	
Woman. 41 years.	" 7	1295	14.	10.49	2.54	2.08	24.4	20.	152.	152.	+60	No bath	Daily diet:—1333 gms. liquid food with 600 cc. water extra.
	" 8	1270	24.5	10.15	2.39	2.07	23.5	20.4	115.	115.		"	
	" 9	1270	14.	10.42	2.23	2.03	21.7	19.5	111.	111.		"	
	" 10	1270	16.	10.05	2.05	2.25	20.5	22.4	91.6	91.6		Bath	Bath:—Hot air, 150° 5 m.; circular, 60° 20 sec., 18 lbs.; fan, 88° 50° 20 sec., 30 lbs.
	" 11	1215	18.	10.02	2.43	2.15	23.2	19.7	113.	113.		"	
Man. 60 years.	" 12	1230	19.5	9.94	2.50	2.08	23.2	21.	110.	110.		No bath	Daily diet:—2 kilos liquid food with 600 cc. water extra.
	" 18	1075	18.	16.8	3.05	8.22	24.2	19.8	122.	122.	+300	"	
	" 19	1500	20.	14.07	3.60	2.65	26.6	50.2	126.	126.	-400	"	
	" 20	1610	19.	14.11	3.86	2.77	27.3	19.6	140.	140.	+300	"	
	" 21	1525	18.5	13.57	3.81	8.94	27.6	20.3	136.	136.	+100	"	
" 22	1625	18.5	16.41	4.14	8.03	28.2	19.	134.	134.	+100	"		
" 23	1385	24.	15.66	4.04	2.80	25.9	18.4	140.	140.	+400	"		
" 24	1475		16.06	4.07	8.77								
Man. 60 years.	" 24	1850	19.	16.75	4.16	8.24	24.9	20.	136.	136.	+200	Bath	Bath:—Hot air, 160° 4 m.; circular, 98°-100° 45 sec., 20 lbs.; fan, 88° 70° 20 sec., 20 lbs.
	" 25	1975	17.	14.48	3.70	2.93	26.2	10.2	139.	139.	-400	"	
	" 26	1385	18.5	15.70	4.07	8.16	30.	10.1	126.	126.	+160	"	

patient. There probably is also a more permanent secondary effect on the blood-vessels as is shown by a quicker and more perfect reaction with continued use of the baths.

Theoretically there should be an effect on the internal organs in the way of increase of activity from periodical flushing. This may be so, though the metabolism experiments reported by me do not show it.

The effect of these baths on the mind of the patient should not be overlooked. He has not the slightest doubt that something is being done for him. No one ever told me that the baths had no effect, while complaints of their severity have not been uncommon. Patients always speak of them respectfully. A former patient with the delusion of demoniacal possession, who had improved while taking baths, wrote me: "Your baths are excellent to reduce cerebral excitement. You can't fight the devil with fire,—he is in his element there,—but he is mortally afraid of cold water."

It is something for the melancholy patient to go to the gymnasium daily for a bath and gentle exercise, with the idea thus kept prominent that he is sick and that efforts are being made for his recovery. Far better is the morning spent in this way than in sitting about the ward, lamenting his terrible condition or brooding over imaginary woes.

We have given baths to all forms of mental diseases; many who have taken them have recovered, but they were all of the forms of diseases generally recognized as recoverable.

PRESIDENTIAL ADDRESS.

*By A. E. Macdonald, M. D.,
New York City.*

The first thought that comes to me in assuming the duties of the honorable office to which, in your kindness, you have elected me, is of the untoward event that has opened that honor to me at least a twelvemonth earlier than in the ordinary practice of the Association I could properly have aspired to it.

At your meeting in Washington, a year ago, you unanimously elected to the highest office in your gift, the then vice-president, Dr. A. B. Richardson, superintendent of the Government Hospital for the Insane in that city, who, as chairman of the local committee of arrangements for that meeting had given conspicuous evidence of his ability as an organizer, and, during the most enjoyable visit to his hospital which brought the session to its close, had given conspicuous evidence also of his charm and geniality as a host.

A few short weeks afterward, and while the pleasurable memories of our meeting with him were fresh in our minds, we were shocked by the tidings of his sudden, unexpected, death, at the height of his efficiency and usefulness.

At the appropriate time in the course of your sessions at the present meeting, Dr. Richardson's life and works, and the suddenness and sadness of his demise, will be properly presented to you by Dr. Tobey, and it is not for me to anticipate that presentation. I but, as called upon, through your great loss, to less worthily, I fear, fill his place, crave leave to bear my personal tribute to the worthiness of my predecessor.

Last year you listened to a presidential address that was erudite and scholarly to a degree. And why should it have been otherwise, for was not your then president also one of

the four editors of the American Journal of Insanity? I have been told by gentlemen of authority, in that they are also erudite and scholarly, though whether they constitute the other three members of the editorial corps or no I will not divulge, that in that essay no author living or dead worthy of quotation went unquoted—save one. I remedy the omission by quoting the following words: "For a whole year such a thing as serenity of soul is unknown to the man who awakes to find greatness accidentally thrust upon him as president-elect of an Association like this. From the moment of initial apprehension to this one of extreme anxiety, the thought of delivering the annual address haunts him during every waking hour and even racks his subconscious mind while he seems to sleep o' nights." The quotation is from the presidential address just referred to; and its author was Dr. G. Alder Blumer.

If such words could be spoken by a gentleman of the facile pen of Dr. Blumer what could be said, even under ordinary circumstances, by one whose pen is so unfacile that some of the members of the Association have been known to claim that they could not even decipher his signature? To further, not ordinary, circumstances of disability in my own case your temporary presiding officer has kindly alluded in introducing me. Had I followed my own judgment and others' advice I should have, much against my inclination, absented myself from your meeting and defaulted in the matter of the address. But unfortunately for myself and perhaps for you, the Association is possessed of a Constitution and a secretary. The Constitution provides, among other things, that the president shall not only prepare an address but shall present it upon the opening day of the annual meeting; and the secretary proposes to see to it that the provisions of the Constitution are carried out to the letter. Under his insistent and imperative demands that I should present myself, dead or alive, I have found it absolutely impossible to escape. Apart from the requirements of the Constitution to which I have already referred, he warned me that failing my attendance the council would fail of a quorum, and that other failures of dire and various import would follow in succession. After my arrival I found that precisely similar warnings and threats had been sent by him to the other members of the council, each of whom

was given to understand that all depended upon him, with the result that the council has not only a quorum but a surplus.

And so I must ask you to accept in lieu of the customary carefully prepared address a few desultory notes; to regard them somewhat in the same light as the despatches such as we read every day now under the standard head-lines "delayed in transmission," and, as is so often done in another deliberative body, "grant leave to print," at some future time, and after possible elaboration.

I congratulate the Association upon an attendance at this meeting which is larger than could well have been expected, in view of the date, owing to necessary deference to probable weather conditions, having been set earlier than that of customary vacations, and at a time, therefore, when duties and engagements held many members to their posts. In addition there are two particulars upon which I may especially congratulate the Association at this juncture—its reaching the sixtieth anniversary of its formation, and its reaching also that talismanic stage in the number of its membership—the four hundred. At the date of the last, or fifty-ninth, annual meeting, the membership, including all classes, stood at three hundred and seventy-four. With favorable action upon your part, if that is taken, as to the applications of candidates upon which the council has already acted favorably and will recommend to you, the four hundred mark will be passed and a total of four hundred and twelve possibly reached.

The Association had its origin in the year 1844 when, at a meeting held in Philadelphia, on October 16th, thirteen superintendents attended and formed themselves into "The Association of Medical Superintendents of American Institutions for the Insane," that title being subsequently abandoned and the present one adopted in the year 1892. With our assembling today, therefore, the Association celebrates the sixtieth anniversary of its birth, and reaches that age which is commonly accepted as that of wisdom, at least in counsel. In the year 1874, marking the completion of the thirtieth year of its existence, the Association, through a committee, compiled and published a summary of its history and transactions, giving, in brief, details of its annual meetings, the attendants there-

upon, the principal topics discussed and action taken, and references to special events of the successive years. The completion with this meeting of a second period of thirty years would seem to make this an appropriate time for the production of a second volume, and I beg to recommend to you the taking of the necessary steps toward its compilation and publication.

The office of president of this Association, with its high standing and large and distinguished membership, is one of which any incumbent cannot but feel proud, and, naturally, election to it is apt to come, as a general thing, somewhat late in life, at least in official life, and the words in which he first speaks to his associates are prone to be mingled ones of salutation and valediction. There is always likely to ring through them the minor key of the *morituri te salutamus*.

For myself, having just arranged for my withdrawal from official life after thirty-five years of hospital service, and having endeavored to prepare myself for the formal address which I had expected to deliver by the perusal of the published transactions of this Association for the sixty years of its existence, I have at the moment almost a paternal, not to say a patriarchal, feeling. And this is not lessened as I survey the faces of my audience, and see among them those of several of the many who have reached high rank in our special field after faithful service as my assistants and associates, whom I am accustomed to think and speak of as "my boys," and of whom, I may confess, in confidence, I am, for the most part, not a little proud. The reading and the associations suggested an address upon the lines that "there is nothing new under the sun," and that I should appropriate for the benefit of, at least my younger auditors, the warning refrain of Thackeray's genial rhyme "Wait till you come to forty year."

It is far from my intention to decry or belittle the progress that has been made in affairs with which we have most to do, or to write myself down as what I suppose would be called in the vernacular of the period, a medico-psychological stand-patter.

While I believe that affairs move largely in a circle and that in their revolutions the same point of the compass is reached from time to time, I believe also that there is a steadily

ascendant movement and a consequent improved position. And I equally believe that in such improvement, in such advance, as steady and marked progress has been, and is being, made upon our own continent as elsewhere. I have no sympathy with the cry that is so constantly ringing in our ears: "They do this and that so much better in Europe." I believe that we can and should gain and borrow much from our confreres in other climes, but I believe also that we can and do make fair and full repayment of the loan. It is but fair to say that the material to which we are often commended, and which if it came, like other material, under the restrictions of the tariff-regulations, would bear upon its back the hall mark "made in Germany," or "France," or where not, is exploited not by its producers, who are becomingly modest as to its merits, but by advocates in our own country who very often know practically little or nothing about it. I do not doubt that many of you have duplicated my own experience in visiting foreign hospitals, in hearing from their superintendents deprecatory reference to the lavish praise which their establishments have gained from some of our countrymen, especially those who have never visited them. The directors of Alt Scherbitz or Gheel, no less than their colleagues of Paris or Berlin or Vienna are the first to speak of differences in location and surroundings and customs which make possible with them methods which would be quite impracticable with us. And to attempt imitation, as we are often urged to do by sincere and well-meaning, but ill-informed, philanthropists, of some less admirably administered foreign institutions or colonies, would be to invite the organization of an informal lynching party with ourselves as the principal performers. Doubtless we have profited much from the researches and experiments of our European colleagues, and in view of the revelations of progress in other, less worthy directions with which an Asiatic nation is just now astounding the world, we need not be surprised if that little people should later give us valuable hints as to the care and treatment of the insane and the prevention of insanity. For myself, I may say incidentally that when we do borrow from peoples other than our own we may, I believe, do so to as good advantage as from any other from that people

who will speak to us, by tongue or pen, in language common to us both.

I had purposed calling your attention at length, and will now do so briefly, to certain matters which, it appears to me, may properly and profitably engage the attention of the Association, possibly in conjunction with other similar organizations. One of these is the perennial question of the classification of insanity, which, often as it has been agitated and pondered, has yet failed of satisfactory adjustment. It is matter of great regret that some, at least working, agreement cannot be reached, faulty even though it should be, which will enable the alienist of one country to understand the statistics of others, and to apply them, by way of comparison, to his own. If such a standard is to be reached it would appear to me that it must be through mutual concessions and agreements of practical men such as compose our own and kindred associations, for I opine that present conditions result from less possibly coherent elements, authors and clinicians, for example, who have the pride of their own classifications, unstable though they be, and are incapable of recognizing possible value in others. An author for the most part establishes his own individual classification which, as a rule, proves diffuse and cumbersome, and which, altered and added to with successive editions tends toward an ultimate approximation in the number of forms and sub-forms to the total number of individual patients coming under his observation. Such a system is, of course, valueless for the practical purposes of record-keeping in a public hospital or an aggregation of public hospitals, hence my suggestion that to those most intimately connected with the latter as represented in this and kindred organizations, we may most hopefully look for relief from present embarrassment. It is but fair, however, to confess, that the history of my own state in the matter is not encouraging. The power of the state commission to prescribe all forms for classification and other tabulations, as well for private as public hospitals, might properly be counted upon to make for simplicity or at least for stability, and as a matter of fact for several years a simple and concise classification was maintained

which, without being by any means an ideal one, served fairly well the necessities of uniformity and clearness.

Shortly, however, before its continuous use had covered the even period of ten years—which with the large number of patients involved would have furnished for all time a valuable basis for reference and comparison—it was superseded by another system of questionable superiority at the best, but, in any case, of sufficient divergence to lessen the value of statistics gathered under either. And now again, after a lapse of but little more than two years, we are threatened with still another revolution, and that in the direction of an intricate association of newly discovered or invented forms which promises little in the way of adhesiveness or permanency.

Another and cognate subject which might well share with that just referred to, interstate, or even international, attention and agreement is that of statistical information in general, the subjects properly embraced within its scope and the forms and limitations desirable. Our sister body—the Medico-Psychological Association of Great Britain and Ireland—approached this subject at its annual meeting in 1902, and a committee then provided for has from time to time since made tentative reports which are most interesting not only in themselves but in the comments and criticisms which they have provoked. The statistical tables then in use in Great Britain, twelve in number, had been adopted by that association from time to time, some of them remaining unaltered for as long a period as forty years, but it was felt that, owing to lack of definition, and consequent diversity in interpretation, there was need of revision in the direction of greater correlation between the tables. In our own territory, there are to be found the same reasons for revision of existing tables, with the added reason that no generally accepted forms exist, each state or province, or, indeed, each institution, being in that respect a law unto itself. It would be a decided gain if this Association, following the course of its transatlantic exemplar, should revise and codify existing varying systems and present a homogeneous system suitable for all hospitals represented in it; and it would be still more desirable if through co-operation with our English brethren a common system might be framed and

agreed upon. I am not an advocate of radical and frequent changes; on the contrary, my hope from a new formula would be such stability as would prevent for a long time to come the recurrent recasting and tinkering which make existing systems well-nigh useless.

Foremost among the standard tables which, in my experience and judgment, are in especial need of reform is that which takes account of the discharges of patients and of their mental condition at that time. These tables are the constant target of question and attack, and from their mingling of different classes of patients, and the influence of transfers, etc., with other points of divergence, are capable of use, and have been used, in the exploitation of most unfair comparisons.

In the addenda to the published volume of the Transactions of your Association for last year there occurs—and it speaks well for the energy and accuracy of its editor, your secretary—but one note under the heading “Erratum,” which reads—Page 175, line 12, for “tabulations” read “fabrications.”

I do not accuse or suspect our secretary of any such undue levity as tampering with either the mistake or the correction, but it occurs to me that this warning is capable of much wider application than to this single instance—“For tabulation read fabrication” might well be suggested of many assemblages of figures, and especially of those by which percentages of recoveries are sought to be established. So notorious have the fallacies of such tabulations become that all reference to recoveries as such has been omitted from several official sets of tables both here and abroad, the most notable recent action in that direction, and in my judgment a very wise one, being in the compilation of statistics for the United States official census now in progress.

In my own state again, if you will pardon the reference, which I make only because its practices are naturally most familiar to me, figures purporting to show the facts as to the number of recoveries in public hospitals in proportion whether to admissions, discharges or the whole, or average, number under treatment, have long been and are becoming still more palpably unreliable. If the figures of some hospitals could be accepted as absolute an acme of successful treatment must

have been reached beyond the dreams of the most optimistic. But unfortunately when read in the light of other information, where, for example, the readmissions are compared with cures, the flattering results set forth in the latter total become much less flattering. The question of recovery from insanity is at best a most difficult one, and when upon the answer thereto depend comparisons between different institutions, or localities, or periods, that answer should be accepted with caution or even suspicion. Hospitals differ as to their clientelle, and preponderance of acute or chronic cases, curable or incurable forms of the disease, or even of one or other sex over the opposite will influence materially the results of hospital treatment.

Superintendents differ in temperament as well as in knowledge and experience, and the sanguine will see recovery when his opposite will detect only improvement, for the personal equation enters into this as into other problems of humanity. After all, it may be said that in a general way the determination of the restoration of sanity in a person who has once been admittedly insane rests upon the detection or non-detection, upon the part of the examiner, of delusions or other evidences of the continuance of the disease. This being granted, the more skilled examiner will claim the fewer recoveries, and will always be at a disadvantage as against his less-skilled colleague and competitor.

In the state of New York, to my thinking, a source of additional error and misconception is found in the permission and practice of paroling patients, and the subsequent discharge of many of them without their return to the hospital or submission to an examination whereby their then mental condition may be determined. In some hospitals indeed, as I am given to understand, the majority or perhaps all of those patients whom it is desired to discharge are first released under parole for a definite period and the mere fact of their failure to return within that period is taken not only as ground for discharge, but discharge "recovered." Very often it turns out that the return has been delayed for but a few hours or days, through unfavorable weather, the missing of a train, resistance upon the part of the patient or some other comparatively unimportant happening. Occasionally there is a graver reason,

the patient's enjoyment of his parole has been curtailed by his consignment to another hospital or to prison, and in more than one instance within my knowledge, his return at the allotted time has been interfered with by his death. In one notable case, indeed, the patient took his own life a few days before the expiration of his parole, but as neither he nor information of his demise reached the hospital on that day, he was duly discharged "recovered." With this untoward event and this one entry this particular patient no doubt ceased his usefulness as a contributor to the recovery-list, but those who did return, though tardily, became again eligible for re-parole and re-recovery, and how often they have contributed to these padded tabula-fabrications deponent sayeth not.

Two other enterprises which might, I think, appropriately enlist the services of the Association have reference respectively to the patients' entrance upon and exit from hospital residence. The methods of commitment of the insane vary greatly in different states and the adoption of some one method, especially if it should result in the securing of not only uniformity but simplicity, is a most desirable desideratum. Hospital treatment for insanity should be as readily obtainable as for any other disease, and the elaboration of legal forms and processes is a dire injustice to the sufferer. Yet in some, if not in most, of our commonwealths the tendency has been steadily in the direction of such elaboration, and I doubt if, in a single instance, the prescribed methods of the present day differ in the direction of simplification from those of, say twenty, years ago.

In some states the ultima thule of injustice and absurdity has been reached, and trial by jury—an ancient and honorable humbug at the best—has, with its attendant publicity and scandal been forced upon the unfortunate patient, and upon his no less unfortunate family. In the state of New York this depth has not been sounded, but it is constantly threatened by the self-constituted and so-called "protectors" who pose as bulwarks against ills which they cannot specify or define. But short of that, in the course of years, we have come to a method of commitment, exemplified by an instrument, so involved and unassimilated that few of the thousands of physicians legally

qualified attempt to execute it; that many labor under the mistaken belief that they must instead of acting themselves call in some specially qualified examiner; and that, from time to time, it has been found needful by the authorities to arrange for special examination of the papers under which patients are being held in order that defects might be made good even to the extent of re-examination and recommitment. I have not known in the course of my long practical experience a single instance of wilful or malicious certification of insanity where such did not exist; and I have no reason to believe for a moment that any sane man or woman is held as insane in any hospital or asylum of our state. But I do believe, that, owing to their abstruseness and indefiniteness, and to conflicting constructions and interpretations of their requirements, scores, or even hundreds, of the commitment-papers under which the twenty-six thousand patients of the state are being held, might be invalidated upon technical legal objections.

Intervention in the interest of our patients at the other extreme of their hospital residence might appropriately find a field in such provision as would make less precipitate and disturbing the return of the convalescent patient to the world and the resumption of customary pursuits and avocations. Every superintendent must often find the need of something to help in tiding over the transition period between insanity and the hospital, and restoration and the strenuous life. Convalescent-homes, employment agencies, pecuniary assistance, and other varied measures have been broached and even initiated, but I am not aware of any systematic and successful endeavor in our own country in the direction named.

In England a measure of success has attended the organized efforts of "The After-Cure Association," though it is significant that in a recent summary of its objects prominence is given to the assistance which may be rendered in the return to care and custody of convalescents who relapse in the struggle. A society which accomplished this purpose alone would not be without its value.

My preparatory reading of the records of bygone Association meetings and coincidently of the annual reports for the concurrent sixty years of the particular institution to the super-

intendency of which I have succeeded have not alone furnished support for the contention that there is nothing new under the sun, but, per contra, have suggested other topics, which, if not new, are at least undisposed of. But I content myself with the few which I have already laid before you.

Whether or no it is the human, though little creditable impulse that comes to one escaping perils to dwell upon them in the ears of those who must remain to face them, I feel the temptation to picture the snares and pitfalls that lie in the devoted superintendent's thorny path—the want of appreciation, or, worse, the misappreciation, of the public; the vagaries of legislators; the wailings of the journals of different shades of yellowness, from lemon to orange.

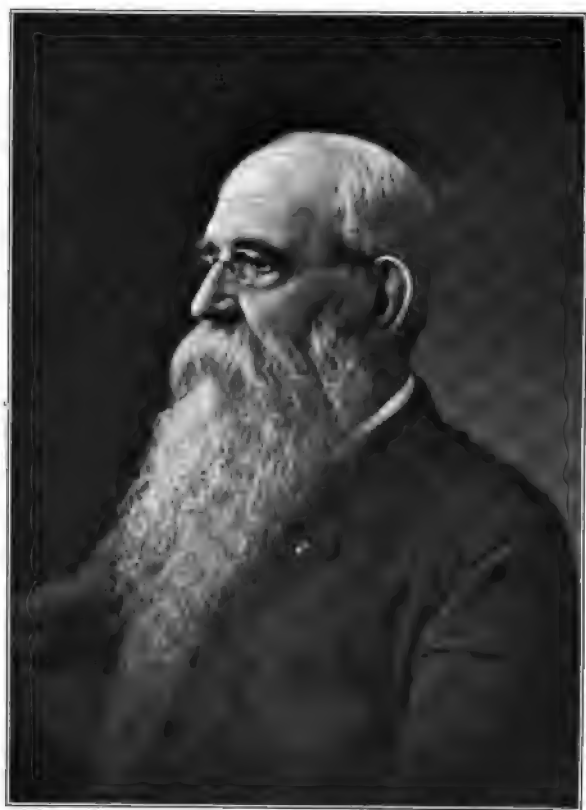
The old gentleman of the fable who amiably and conscientiously sought to follow the conflicting advices of successive counsellors in applying to the solution of the problem of intra-urban transportation the then prevailing motive-power, the patient ass, has long stood for the embodiment of uncomplaining submissiveness. As a matter of fact, he was probably an over-rated sufferer as compared even with his congener of the present day of United and Amalgamated and Brotherhooded Critics. At least he was not in the same class as the all-suffering psychiatrist who finds his prelethal purgatory in the public service.

Perhaps the fact that custom opens to the ladies at least that session of the Association's meeting at which the presidential address is ordinarily delivered, and the consequent vista presented to me of gentler amidst sterner visages, suggest a reference to the trials that may come to you through the less gentle fragment of the gentler sex. I do not mean to disparage the great, good work that is constantly being performed by good women, official or unofficial, in behalf of the insane. If nothing else, the recollection of such work of the former kind as was performed within our board of managers, when we had such a board, would debar me. I have in mind rather the proffers of the self-constituted and the unequipped, for we have always with us the older lady who quite unable to manage her own household of two or three domestics, has yet definite and obtrusive views of the proper relation of the superinten-

dent to his five or six hundred subordinates; or the young lady sophomore who, after two or three months of settlement-work, feels quite fitted and inspired to point out to the same delinquent the mistakes and falacies which have marked and marred the decades of his service.

But I think of one class among the gentler sex whose members are fulfilling a certain great mission which has fallen in their way, so quietly, so unostentatiously, so modestly, bringing comfort and support alike to patients and to servitors, that their meed is seldom recognized, and their public praises never sung. I doubt if even my present auditors will at once understand to whom my words apply—the wives of hospital superintendents.

And now, gentlemen and ladies, there are other topics to which it was my purpose to refer, but I feel that at the present juncture I am perhaps in better accord with my audience than I may again establish, and I prudently desist, thanking you for your consideration and courtesy, again for the high honor which you have conferred upon me, and bespeaking prosperity and success for our Association and for yourselves severally.



ORPHEUS EVERTS, M. D.

MEMORIAL NOTICES.

DR. ORPHEUS EVERTS.

*By F. W. Langdon, M. D.,
Cincinnati.*

By the death of Dr. Orpheus Everts, which occurred at his home in College Hill, Cincinnati, on June 19, 1903, in his seventy-seventh year, there is lost to the community a commanding figure in a historic and literary sense, a most attractive personality to his friends, a physician of broad attainments and power, and a devoted, unselfish husband and father.

For thirty-four years an active and honored member of the American Medico-Psychological Association and its predecessor, The American Association of Superintendents of Hospitals for the Insane, his kindly personality and commanding presence have been familiar and welcome features of its meetings; as were his valuable contributions on various scientific topics connected with its work.

Derived from a distinguished New England ancestry—his grandfather having been an officer in the Revolution; his grandmother a direct descendant of Miles Standish—and reared in the varied environment of a commonwealth that passed from wilderness to cultured civilization in the brief period of a generation, he was not merely a witness to this remarkable development, but was himself one of its actual moving forces. As such he represents a type of great interest to the anthropologist, the psychologist and the historian; a type, which, unfortunately for us, is rapidly disappearing under present conditions.

A man of magnificent physique, dignified yet companionable, scholarly yet not pedantic; bold in conception, wise in judgment, firm in execution, lenient in criticism, he was an admirable example of that rarest of all human attainments, a

highly-developed and well-balanced organism physically, mentally and morally.

He achieved distinction as physician, journalist, jurist, soldier, statesman, educator, literateur, poet and philosopher, and retained his finely cultivated mental organization to the closing hours of his life.

His career has been a broad one, probably impossible of attainment at the present day with its intensive methods and tendencies.

The word "successful" has been so narrowly limited in popular phraseology to the mere accumulator of material wealth, that we seem to need a new adjective, one more "strenuous" than "altruistic" to characterize such a career of active, persistent, productive effort in the interests of the health, happiness and moral welfare of mankind.

Dr. Everts was born December 18, 1826, at Salem settlement, Union county, Indiana, of Vermont ancestors, who settled in Ohio in 1795. His early education was obtained in the common schools, and he studied medicine under the direction of his father, Dr. Sylvanus Everts, and Dr. Daniel Meeker, of La Porte, Indiana. Graduating at the Medical College of Indiana in 1846, he later received honorary degrees from the University of Michigan and from Rush Medical College.

He entered the practice of his profession in 1846 at St. Charles, Illinois, where he married Miss Mary Richards, daughter of Dr. George W. Richards. After several years of practice he retired to accept the editorship of a newspaper at La Porte, Ind., which position he occupied for three years. He then studied law and was admitted to the bar in 1860. During the period of his law studies, he was registrar of the United States land office at Hudson, Wisconsin, and also a presidential elector from his native state.

"The days that tried men's souls," at the opening of the Civil War, found him at the front as Surgeon and Major of the Twentieth Regiment, Indiana Volunteers, in which position he remained throughout the war, participating in every battle of the Army of the Potomac with the exception of Bull Run and Antietam.

A letter written to his father during this period, describing the surgical aspect of one of these battles, is of such historical interest and throws so much light on the character of its author, that it is well worthy of publication here:

“Headquarters Second Brigade, First Div., 3rd Corps,
Army of the Potomac, Va., Dec. 11, 1863.

“Dear Father: I promised Mary in a late letter to write to you, after the next battle, a detailed account of my surgical experience. The battle fought since was not a general engagement of the whole army, being confined almost exclusively to the troops of the third corps on our side and the celebrated Stonewall Jackson Corps of the enemy. We had crossed the Rapidan late in the evening of November 21st, and bivouaced in the woods. Our wagons could not cross owing to the steep banks, and were sent round several miles by another ford. We were (headquarters) consequently left for the night without blankets or tents. The night was very cold, and I spent the night watching and waiting and keeping the fire, most of our company sleeping part of the time. I did not sleep, as my skin is very sensitive to cold. The corps is constituted of three divisions, three brigades in each division. The second division had the advance in the morning of the 27th. The third division followed, the first division succeeding in the rear. The day was clear, cool and agreeable. The second division had not marched more than two miles when its advance became engaged with the enemy's pickets. A scattering fire was kept up for two hours or more when the main line of the enemy was discovered, and his position ascertained. The third division was placed in line with the second, and the first division brought up in support as a reserve.

It consumes much time to make disposition of troops for a battle. It was 2 o'clock p. m. before a general advance was made, and the enemy fairly engaged. The firing then became general, continuous and heavy, along a line of over a mile in length. Our forces and the enemy were covered by dense woods and undergrowth. There was no opportunity to use artillery, and the two forces fought with muskets at close range; never more than seventy-five yards apart, but much concealed by the timber. Our third division gave way very

soon, and the first, the veteran Kearney division, was put in at once. The battle continued without interruption, the lines swaying backward and forward, now broken, now regaining ground, carrying points and being driven back again with no decisive results to either party, until after dark, when each party fired at the flash of the opposite guns. Suddenly the firing ceased; the enemy had abandoned the field, leaving their dead and wounded on the ground.

"I took up position with the medical officers of my brigade (save one for each regiment accompanying the regiments more closely) in a small clearing three or four hundred yards in the rear, to await the development of the battle, before establishing ourselves permanently for work, waiting in fact for the proper officer, the medical director of the corps, to select the position for the field hospital. The rear of an army engaged in battle is a remarkable, and in many respects, a pitiable spectacle. Scattered about in every direction you first see the 'stragglers' who have failed to reach the front from various causes, principally fear. Then as the troops become engaged, there begins a stream flowing from front to rear, that from its appearance threatens to drain away the strength and substance of the army.

"First the drummers and the fifers of the various regiments. Then the officers' servants, black and white, with baskets of provisions, knapsacks, haversacks, tin-kettles, frying pans, smoked and burned coffee pots, canteens, ends of hams, partly filled bags, every imaginable thing almost, confusedly piled on. Pack mules, heavily laden with similar motley furniture, pack horses, officers' extra horses with grooms, men without guns, with here and there a group of mother and children, sometimes a cripple, "poor white trash" of the neighborhood driven out of old cabins in the vicinity of the combat; frightened, friendless and homeless, in tattered garments, barefooted, bonnetless haggard remains of a community desolated.

"Then begins the second current. Men with bleeding, mutilated hands, arms swinging powerless, faces smeared with blood, hatless, wild-looking, anxious countenances; men limping with bloody limbs, supported on each side by men with guns or without, but all too willing to help away a wounded

comrade, or even a stranger. Then more serious cases, men on stretchers like biers, on blankets carried by fours, on guns crossed for a support. Thighs crushed, foot carried away by cannonshot, knees blown open by pieces of shell, head broken, pale, ghastly, shocked, gasping for breath, these interspersed with the thorough coward, skedaddler, demoralized 'dead-beats' all pouring to the rear, back, back and anywhere for security! Of course with all this there is excitement. Every countenance is a picture of passion; every step is indicative of states of mind peculiar to the individual. In front all is smoke and war of battle. A stranger looking on would take fright, supposing the whole army was routed. If he asks the question, some would sullenly push on in dogged silence; some glad to be spoken to would assure them that their regiment was 'all cut up,' 'none left but themselves.' An occasional shell overshot, explodes in the midst of this troubled sea, producing new consternation. Minie balls hip and sing through the air, riderless horses plunge madly through the crowd. Batteries sweep by in haste to gain new positions, riders ply the lash to the poor overstrained horses. On the gun carriages and caissons there are yells in every possible key of passion and high over all the direst profanity that ever passed the lips of man.

"Amidst all these the surgeon sits his horse, or dismounted, faces the tide anxious for the results in front. Composed, he has become accustomed to such scenes. If a strong man, by nature or by will, the more timid or nervous of his staff gather around him, and ask questions. As if he could answer infallibly what they have had as good an opportunity to know as himself. 'Wondering,' in an interrogating way; in short, leaning on him for support. The surgeon's time has come. The field hospital is established at the nearest point where water can be obtained and the least exposure to shot and shell will have to be suffered, because wounded men, however brave before, are easily terrified, and the fear of being abandoned or hit again depresses the stoutest hearts.

"The surgeons' department for field service is organized in this army by divisions. There is a chief operator and two assistants appointed for each brigade. Appointed for skill

and ability without reference to rank. One recorder registering wounds, operations, etc. One superintendent of cooking department, to get ready food for the wounded. One in charge of the hospital to receive wounded and dispose of them, for operation or ordinary dressing, etc. The rest are employed on slight wounds, and subject to general order for any duty which may occur. Each surgeon in chief of brigade has two medicine wagons with supplies in his charge, and each brigade has an ambulance train under his direction; each ambulance has a driver, and two stretcher bearers on foot, with stretchers to bring the wounded from the line of battle to the ambulances. When ambulances can be employed, the surgeon in chief of brigade takes an amputation table from his wagon, sets it up under a tree or in a barn, shed or house, if so fortunate as to find one near. Supplies of chloroform, plaster, sponge, bandages, etc., are placed near. The operator with his assistants opens his case of instruments, the first man is placed on the table, chloroform is administered, and the work begins. Suppose my own table, Dr. Grover is always my assistant, there are others always near, ready, anxious to see operating. One gives chloroform, 'Hank, is he ready? All right.' I explore the wound with my fingers, and pronounce 'the tibia is shattered from the middle upward.' Is the joint involved? 'Let me see.' Yes, the fracture opens into the joint; 'amputation of course.' The limb is removed as close to the knee as possible, operating through the condyles of the femur in preference to disarticulating the knee, a modern operation, but one which we have discarded. Before the arteries are tied, some surgeon says, 'Doctor, I have a case here, an officer of my own regiment; I wish you would operate on him as soon as you can.' 'Very well.' The first case lifted off the table on to a stretcher is borne away to be laid on the ground, with perhaps one blanket under and over him, and a knapsack for a pillow.

"'Bring on your man, doctor.' On the table the man turns a pale anxious face to yours, inquiring with his eyes, deep, death-prophetic eyes in which you read the story of a life, the past ambition, the struggle, despair, hope, home, mother, wife and children. Eyes asking at your eyes is there any chance?

The chloroform has quieted all anxiety, all fear, all pain. 'A shattered thigh, the bone is terribly comminuted. The head of the bone is injured.' Will you exsect the head of the bone or amputate? I will not amputate at the hip joint. It is a hopeless operation with so much shock. If the artery is not injured I will remove the head of the bone with the fragments. Ah, the artery is destroyed. This man must die; dress his limb with a wire splint and give him his chances. Who next? Several cases are waiting. 'Here is a case, doctor; I think you can save the leg.' Yes; it is a fracture with comminution of the tibia, no joint involved. I remove the fragments, saw off the end of the bone, dress with cold water. 'Next,' amputation at the shoulder joint. The stretcher bearers set down a man by your feet. 'Doctor, Doctor, Doctor,' in two or three directions. You stoop down to examine this man. 'Shot through the abdomen; he requires no operation; take him over yonder.' Rising, a dark, stout, dirty fellow thrusts a wounded hand at you, and complains of neglect. 'I have not had anything done for me yet; can't you dress my hand?' 'Let me look at it.' 'How did you get that shot?' 'I don't know, I was just loading my gun.' Oh, my dear fellow, don't tell me anything about it. I don't want to hear your story, it was your own gun that made that wound, and you did it yourself for an excuse to get away. I pity you for a coward, but cannot spend time to take care of you; get out of the way, don't come near me again until everybody else is taken care of. You are a 'beauty' man, ain't you? I have seen too many of your kind of soldiers!" He subsides without a word, poor wretch, to carry a monument of his own meanness on his person for life.

"There is but little complaint, not much noise, only an occasional groan about the operating tables. There is anxiety, awe and deep resolution. I have given you a glimpse, and a glimpse only. Night comes on, the battle has ceased. Now the ambulances begin to bring in those worst cases which fell and remained on the field during the heat of the engagement. As night drew on (during the late battle) the air became very cold; we had to build numerous fires close to the wounded and keep them constantly replenished during the

night to prevent the sufferers from perishing from cold. As the night advanced the wounded were brought in more slowly, an hour or more and no new cases. Medical officers, weary and cold, find retreats out of hearing of complaints, and roll their blankets about them for a little rest. The surgeon in charge of the hospital, whose business is to see to unloading ambulances, and that all officers and attendants do their duty, is by this time saturated and sleepy. I know there is another ambulance train out, and to arrive. I roll a blanket about my shoulders and patrol the encampment of mutilated men until two o'clock; the last train is in, the wounded out and lo! the head of the column of troops on the move begins to appear. On, on, until daylight the living column draws closely along the men who escaped yesterday 'cracking jokes' over the misfortunes of their comrades as they pass by us; on, on, toward another fight, which may cost the merry ones as dearly. My work as operator is finished at this temporary hospital. I join my general at the head of his brigade, and fall in with the living current, leading, it is not our business to know whither, and we do not speculate much about it.

"It is now the 28th of November. It rains all day. Late in the afternoon we make our position in front of the enemy's entrenchments, and bivouac for the night in the shelter of an oak grove. Toward morning, from sheer exhaustion, I crawl up before the fire at a right angle with the general, and sleep profoundly for three or four hours. My friends, who have slept earlier, do not wake me until breakfast is cooked, i. e., some meat fried and coffee boiled; 29th, brigade changes front somewhat, and about noon I receive orders to report back to a hospital three miles in the rear, where the wounded of the previous Friday have been brought. Arriving, ordinary waiting until next morning, sleeping a very little;—it is too cold for me to sleep; 30th, general assault to be made today. I go to the front by direction and establish a place to receive the anticipated wounded of the day. No fighting yet. P. M. Skirmishing, artillery duels along the entire line, but few casualties. At night return to general hospital in the rear, conscious that we must retreat

soon. 1st December. The entire ambulance train of the three corps, excepting one brigade for each division, and thirty ambulances from the fifth and sixth corps, are ordered to report to the director of our corps early. The director hands me written order, placing me in charge of the wounded of the corps, to convey them to the rear, and 'until further orders' I have the entire care and responsibilities of these men, 484 in all, with fifteen medical officers, sixty attendants, a train of ambulances, and hospital wagons, one mile long or more. It was a painful job to load these sore men into the ambulances, but at last we pulled onto a wretchedly rough road, wound our tedious way through cut roads in the meadows twelve miles, crossed the Rapidan and packed for the night on the bank. The air was again freezing cold. My officers were very tired. The attendants nearly all struck into the woods, whilst we were packing the train, and but few of them could be found to do duty for the night. Out of twenty for the first division but four could be found. Such is the inhumanity of man. I ordered morphine and whisky for the wounded as the only resort; divided the officers into reliefs for the night. Saw that abundance of beef soup, hot, was served to all; lay down but failed to find sleep or rest. So I patrolled that camp all that cold night, and not without need. More than once I found no officer of some division on duty. No attendant to hear a groan. Wounded men importuning ambulance drivers for a drink of water. Offering money for a drink, three rods from a stream, and in rain, until I compelled the man whose 'duty is to drive, and not to wait on wounded men' to bring the water and supply the want. I passed a slightly wounded man. 'Doctor! there is a fellow by my fire bleeding to death.' What division? Second division! Is there no officer on duty? 'No.' How long since the surgeon was around? Don't know; haven't seen any tonight. I follow the man by a small fire in the bushes by the bank of a stream, the light of fire making a wall of darkness around. A soldier is kneeling, his hands on the ground, his head bent forward and a ribbon of blood from his mouth shining in the light seems to bind him to the earth in this position. Shot in the face, the ball passing under the tongue and lodging deep in the vertebra,

wounding some of the small arteries of the submaxillary region. I find the medical officers of the division all asleep but one; order him to take care of the man; he springs like a struck child. The blood is staunchd by per sulphate of iron. On again I go listening among the ambulances for complaints. Bump, a collision in the dark; an attendant, he discovers me. 'I say, doctor, there is a fellow dead in that ambulance, and the other fellow wants him out, so he'll have more room.' We take the dead fellow out and lay him on the ground to stiffen in the dim starlight, and the other fellow with more room turns over and goes to sleep. I remember the dead one. A cannon ball carried away his leg above the knee. The thigh was amputated high up, and he had never reacted. He had watched my face all the morning. I had spoken to him kindly, promised not to abandon him; he had told me where he was born, near Newburgh, N. Y., that his father had died since he enlisted, and spoke very tenderly of his mother and little sisters. Poor fellow, his spirit had passed out into the world of spirits with no earthly witness.

"I took a small purse from his pocket containing \$1.90, a knife, tobacco box and a Sunday school, or rather an army mission paper, 'The Christian Banner,' the only remaining effects of the perished hero. He was buried in his blanket at sunrise along with two other fellows who slept away as silently during the watches of the night. A sudden scream from a distant ambulance attracts my attention. Seeking the place, 'What is the matter here?' 'Why, doctor, there is a fellow in there shot in his head; he's crazy as the devil, and trying to kill the other fellow that's in with him.' Sure enough, a soldier with a ball hole in his skull and the brain oozing out, and matting his hair with the blood, raving, and with futile efforts trying to revenge himself on his mistaken foe, who, also wounded, is too badly injured to make resistance or to get away. At daylight I lay down by a fire and slept while the horses were eating and the train getting in readiness to move. We moved all the day December 2nd until midnight. The remainder of the night was but a repetition of the previous one, except some of the medical officers had come to the conclusion that I 'never slept,' and they were more vigilant.

The next morning the train moved on, reaching the railroad, but no cars could be had that day. Another night of care, labor, anxiety. On the fourth I got transportation for Alexandria, the men were loaded on platform and freight cars, with hay under them, and by dark we reached Alexandria, and before midnight had the wounded in beds in the excellent hospitals of that city. I found myself in bed at last, but suffering too severely from an injury of my leg received in the morning by the falling of my horse, to sleep comfortably. Saturday and Sunday spent in Washington in my room most of the time. Monday returned to camp, greeted by some warm friends, and here I am ready for another campaign, but praying for the humanity of the case, that we may be spared the necessity until the spring brings with it balmy air, and warmer skies.

"Now my dear old veteran of the profession, which of all life occupation opens the widest field for a good man to be of use to his fellows. If this hasty sketch has afforded you entertainment and instruction, and you find it in your well-tryed and never-failing human heart to say 'Well done, my boy,' I shall be well repaid for my trouble in writing this, as I have already been for my labor and exposure, in the consciousness of having executed well the trust given me; under the circumstances, trying the stuff of which I am composed. Much of which that is kindly and good, and strong, I realize in my nature as resembling the great characteristics of my parents.

"If I never dishonor them, the world will never dishonor me. Blessings and peace for them and love for all who reach up to them as children. While I remain,

"Your affectionate son,

"ORPHEUS."

After the war he devoted his attention to psychiatry and diseases of the nervous system, and in 1868 was appointed superintendent of the Indiana Hospital for the Insane, which position he filled for eleven years. He also occupied the chair of nervous and mental diseases in the Medical College of Indiana at one time.

He was widely known as an alienist, and his services were frequently sought in consulting practice and in medico-legal cases, notably by the United States government in the trial

of the assassin of Garfield. Since 1880 he was medical superintendent of the Cincinnati Sanitarium, which institution under his administration, assumed a leading position amongst the private hospitals of the country.

Dr. Everts was a frequent and welcome contributor to the press. Amongst his more important contributions to general literature are: "Giles & Co., or Views and Interviews Concerning Civilization," a novel, illustrating some phases of heredity; "The Cliffords," a philosophical allegory, introducing impersonations of religion and science; "Facts and Fancies," in blank verse (a modern American epic); "The Lost Poet," a poem written for the Western Association of Writers, when he was over seventy years of age.

He was the author of numerous medical papers, published in the American Journal of Insanity, The Cincinnati Lancet Clinic, The Journal of the American Medical Association, etc.

He was an active member of the American Medico-Psychological Association, the American Medical Association, the Ohio State Medical Association, the Academy of Medicine of Cincinnati; also a companion of the Loyal Legion and a member of the Masonic order.

While occupying a position that tends to isolate the physician from the profession at large, Dr. Everts was remarkable for his active interest in medical progress and kept in touch with it through regular attendance upon the meetings of various societies to which he belonged.

One of the last acts of his professional life was to prepare a paper for the section on "Nervous and Mental Diseases," for the American Medical Association at its New Orleans meeting, in May, 1903, which paper appears in the Journal of the American Medical Association, April 16, 1904.

He had planned to attend that meeting, but a few days before its date a rapid failure in the digestive functions marked the beginning of his last illness.

In full consciousness that the end was near, he viewed the approach of the "grim reaper" in the same philosophical spirit in which he had lived, without regret for the past or fear for the future, manifesting to the last his usual thoughtfulness

in the welfare of others and his kindly appreciation of the warm remembrances of numerous friends, whom he was unable to see in person. The end was peaceful and painless from respiratory failure, preceded for some weeks by inability to assimilate sufficient nourishment to sustain the vital functions.

Under the auspices of the Loyal Legion, brief services were held by the Rev. John C. Ely, at College Hill, on Sunday, June 21, and enfolded in the flag under which he fought, his remains were laid to rest in Crown Hill cemetery, Indianapolis, on June 22, 1903.

His widow, a son, Dr. C. C. Everts, of Indianapolis, and two daughters, Mrs. W. O. Robb, of New York, and Mrs. J. K. Brice, of Lima, Ohio, survive him. Two sons are deceased.

DR. EDWARD C. RUNGE.

*By Frank R. Fry, M. D.,
St. Louis, Mo.*

Dr. Edward C. Runge was born in the city of St. Petersburg, Russia, in 1856, and died in St. Louis, Mo., of acute pneumonia, February 10, 1904. His parents, who were both German, carefully looked after his early education, which was acquired in various schools in his native city. His familiarity with the classics, as well as with modern languages, higher mathematics and elementary sciences was well known to his intimate acquaintances.

His intention was to study medicine at the finish of a collegiate course. The death of his father, however, made it necessary for him to leave school at the age of eighteen years in order to assist in the maintenance of the family. After a period of several years he came to America, and to St. Louis in 1883. He began the study of medicine regularly in 1888, in the St. Louis Medical College, and graduated in 1891. He found the struggle of completing his medical course with no financial assistance a hard one; but he was always courageous and patient, and only satisfied when his work reached the highest standards. Meantime his excellent qualities and personal accomplishments were gaining many friends for him in the city of his adoption, and he was much esteemed by the members of the medical faculty. During his senior year he was an instructor in physiological chemistry and a year after graduation took up this work again for a period of four years. At the same time he was assistant in the neurological clinic at the St. Louis Medical College. During this period he wrote an attractive paper on "Merycism." The amount of

original work shown in this paper was rather astonishing to us who knew that he had no assistance in its preparation. He was familiar with the chemic problems involved, however; and in the clinical study read everything that he could get his hands on, sending to the Smithsonian library and elsewhere for many volumes. A paper on "Syringo-myelia" a year or so later was prepared in the same thorough and brilliant manner; and at the time that it appeared was a valuable contribution to the subject. I mention these two earlier communications, particularly, because they illustrate how at the very beginning of his medical career he employed the same thorough methods of work that later became so well known to the members of this Association.

For a period of about four years Dr. Runge was in private practice in St. Louis. In 1902 he married Miss Emily Foote, of St. Louis, who survives him.

His institution work began in 1895 when he was appointed superintendent of the St. Louis Insane Asylum, which office he held until a few days before his death.

Dr. Runge was heart and soul a psychiatrist. He began the work almost by chance nine years ago. Immediately he found it congenial and harmonizing with the philanthropic impulses which were so deeply rooted in his nature. We are familiar with the energy with which he prosecuted it, undaunted by the obstacles with which he had to contend in the institution in which he labored. His annual reports became models of their kind. His writings were full of spirit and enthusiasm. He kept his mind constantly alert to the many and varied problems of hospital work and active in the contemplation of the scientific possibilities of psychiatry. His ideals were high. He loved to keep them so and dwell with them, and to stimulate enthusiasm for them in other workers.

His loss is a very great one, not only to psychiatry, but to civic advancement in general. Especially in this community in which he lived and worked, where we had learned to look to him and follow him as a leader, do we mourn his untimely death.

DR. A. B. RICHARDSON.

By Henry C. Eymann, M. D.

Dr. Alonzo Blair Richardson was born in Scioto county, Ohio. From early youth he was sturdy, upright and manly. His education was obtained from the country district schools, and later from the Ohio University at Athens. He taught several terms of school, beginning amidst the hills of West Virginia. He was always a student of nature, and his surroundings in West Virginia were such as to develop to the greatest degree this love of the mysterious, and made him keen to delve still deeper into nature's secrets.

His medical education was received at Bellevue Hospital College, New York, from which institution he graduated in 1877. He was shortly afterwards appointed assistant physician at Athens State Hospital. In 1880 he succeeded to the superintendency of that institution. Here he brought to bear his wonderful personality, which afterward made him the foremost alienist of his day.

The first congregate dining rooms in this country, for the insane, were successfully installed early in his administration. His nature, full of sunshine and good cheer, brought solace and comfort to many afflicted ones in the hospital, as well as to hosts of friends of patients, who always received kindly consideration, no matter how heavy his burden.

In 1890 he resigned, and engaged in private practice in Cincinnati. Here he was more than ordinarily successful, but in the spring of 1892, Governor McKinley, in looking about for a suitable man for the head of the Columbus State Hospital, decided that Dr. Richardson must give up his private work and once more devote his energies to the public weal. He reluctantly gave up his beautiful home, but duty called

and he was not the man to refuse the call. On March 31st of that same year the legislature passed a bill establishing a commission to select a site for a new hospital in Eastern Ohio. Again was Dr. Richardson called upon for extra duty. He was made a member of this commission, and was the moving spirit in selecting the beautiful site for the Massillon State Hospital. In November, 1892, Governor McKinley appointed the construction board for the new hospital. Of course Dr. Richardson was made a member of this board. Here his excellent knowledge of the requirements of a hospital for the insane made him the principal factor in the selection of plans, methods of construction, arrangement of buildings, and in fact everything which pertains to the construction and equipping of an institution of this kind.

In the spring of 1898, when the Massillon Hospital had reached a stage in its construction making it desirable to receive patients, Dr. Richardson was naturally made chief. Here the work of organizing, furnishing and equipping the new institution, all with insufficient funds, worried him and for a time his splendid physical health was impaired, though by his indomitable energy the hospital was successfully launched in its career for the ameliorating of suffering humanity. In the fall of 1899 Dr. Richardson was called to a still wider field. There being a vacancy in the position of superintendent of the Government Hospital for the Insane, President McKinley, aware of the exceptional skill and ability of Dr. Richardson, recommended him for the position, to which he was elected the latter part of September, 1899. In this larger field his superior knowledge of details and excellent executive ability soon gave him unusual prestige with his immediate superiors, and the people of the country. Never had man a more promising future, the sun shone brightly and he was rapidly reaching the pinnacle of his endeavors, when the angel touched his elbow and beckoned him to follow. But while the nation bows its head in acknowledgement of his great intellect, we, his intimate friends, only, can appreciate the loss of his kindly presence, his words of advice. While the world has lost a man eminent in scientific and literary fields, we have lost a dear friend and loving counsellor. The Massillon State Hos-

pital, which is gradually growing, expanding and unfolding into one of the most complete institutions for the care of the insane, in this or any country, is largely the result of the genius of this splendid man. Aye, a man, every inch of this sturdy citizen a man. It was the writer's gracious opportunity to serve with him on the Massillon board, it was his fortune to work as his assistant at the Athens' Hospital, it was his glorious privilege to have been able to call this man friend from the first day of his work in the Athens Hospital to the day of his death. Dr. Richardson's life was a constant benediction to humanity, and no one could come within the circle of his beneficence without absorbing a part of his enthusiasm. No one left his presence without feeling that in some way his plane of life had been made higher, that in some indefinable manner his life was made purer. The world was richer because of his life.

His brilliant professional achievements are familiar to all. It was the privilege only of those who came in contact with the man to know of the richness of his friendship, to know the splendid quality of his inner life, the purity of his soul, and the love for humanity which dwelt within his big unselfish nature. Aye, a man was that.

We are constrained to say,

"But yet I know
Where'er I go
There hath passed a glory
From this earth."

*A Memorial Address read at Broad Street Methodist Episcopal Church,
Columbus, Ohio, July 1, 1903.*

By W. H. Scott.

Alonzo B. Richardson was born near Harrisonville, Scioto county, Ohio, September 9, 1852. His whole life with its achievements, except this fraction of a year, was bounded

within the narrow limits of half a century. His childhood was a childhood of fresh air, of fields and woods.. He saw and climbed the hills and from their tops looked away to the horizons with their rising and setting suns. The activities of country life made his young limbs strong and elastic. Its labor and hardship and privation inured him to effort and endurance, while its freedom fostered his natural ease of adaptation. And these forms of early experience were by no means the least valuable part of the capital with which he afterwards carried on the business of life.

But, farther back and better still, he was born from parents of intelligence and character, and inherited a mental and moral fiber which has been the warp of his life, insuring its strength and integrity. Into this warp were woven by his early environment and training, habits of industry and resolution, and aspiration for higher things than those to which he had been born. That the atmosphere of his home was wholesome and quickening is shown by the fact that his older brother, his younger brother, a sister and himself all became college students.

He left his country home for college at the age of eighteen. He first entered the Ohio University at Athens, where he soon became known as a capable, substantial youth who knew what he was there for and meant to make the most of his opportunity. After two years he went from the Ohio University to the Ohio Wesleyan University, which he attended nearly two years, being absent in the spring of one year to teach a country school. In the fall of 1874 he entered a medical college at Cincinnati, and the next year went to Bellevue, New York City, where he graduated in 1876.

Returning to Ohio he applied for the position of assistant physician under Dr. Richard Gundry, who was at that time superintendent of the State Hospital for the Insane at Athens, and one of the most distinguished alienists in the United States. He received the appointment and began there the career in which he subsequently became so eminent.

During his attendance at the Ohio University a new interest had sprung up in his life, an interest which deepened and ripened till it came to fulfillment in October, 1876, by his mar-

riage to Miss Julia D. Harris, daughter of Mr. James Wesley Harris, of Athens.

In 1878, by a political reorganization of the institution, a new management was installed. Dr. Richardson removed to Portsmouth, Ohio, and began a general practice of medicine. He remained there till 1880, when, on the transfer of Dr. H. C. Rutter from the superintendency of the asylum at Athens to that of the asylum at Columbus, Dr. Richardson was elected as his successor at Athens. He remained there till 1890, when another political reorganization took place. He then removed to Cincinnati, where he entered on the practice of his specialty, nervous and mental diseases, with the intention of continuing in it permanently,—and accordingly he built a house which he thought would be his home for many years. But before he had occupied it, he was, without solicitation or suggestion on his part, unanimously elected to the superintendency of the State Hospital for the Insane in Columbus. This was in 1892, and he retained this position till the completion of the new hospital at Massillon in 1898. He had been one of the trustees of this institution from the first, and had largely shaped its plans. He took a deep interest in its construction, and it was perhaps mainly due to his influence that its arrangements and appointments were so complete. He was made its first superintendent, and had thus the task and the privilege of consummating an enterprise which he had helped to foster and guide from its earliest beginnings.

He had scarcely completed the organization of the hospital at Massillon when a vacancy occurred in the superintendency of the United States Hospital for the Insane in the city of Washington, and in October, 1899, he was appointed to fill it. His work there was enormous and made heavy drafts upon his energies. Through his efforts liberal appropriations were secured, additional land was bought, and plans were adopted for a great enlargement of the institution. But before these plans could be half realized came the sudden and inevitable call to cease at once his work and his life.

Such in review are the leading facts in a life which we all regard as highly successful. But we are less concerned to survey the outer and shifting scene of a man's career than to

discern the inner quality of his life and to know the character that lies behind it. The two vital questions about Dr. Richardson remain to be answered: What kind of work did he do? and what kind of a man was he? You may say the questions do not lie apart, for, under natural conditions, a man expresses himself in his work and is therefore known by it. But conditions are not always natural, and the pathos, nay, the perpetual tragedy, in many a man's life is that he can make no adequate expression of himself in his work. Suppose that hard circumstances or somebody's blunder had kept Dr. Richardson from his youth at some machine in a great factory or at a desk in a great railroad office, and suppose that the happy occasion had never come to him by which he could get free and attain a position that would give him a mastery of things. That would have been pathetic. For him it would have been tragic. But that has happened, and is now happening, in tens of thousands of unhappy lives. In the wards of the very institutions over which Dr. Richardson presided it is almost certain that there were men or women who under favorable conditions would have risen to eminence and would have rendered an honorable and useful service to society.

But in his case the man and the work met. The man, for the most part, was free to put himself into his work, and the work took the impress and was pervaded by the spirit of the man. What manner of man was he and what manner of work did he do? His work looks to us today like a sadly unfinished work. There are few lives which seem complete. There is always something left undone. But his presents here at its end an edge unusually raw and irregular, as if the weaver had forsaken the loom long before his task was done. The fabric that he wrought is strong and fair, but it remains a fragment and not a finished whole.

So it seems when we think of what it might have been, and what it would have been if twenty, or ten, or even five years more had been added to his life. But when, turning our eyes away from this unfinished end, we look back upon the life that he actually lived and the work that he actually accomplished, we see the skill of a master hand. The fabric, to the last thread that he threw, was not only strong and fair to look

upon, but instinct with the thought, the imagination, the purpose, the heart of a workman who toiled to achieve a great and noble design.

I think that any one coming into Dr. Richardson's presence for the first time would be impressed with his quiet earnestness. There was no flurry, no impatient haste, no loud self-assertion. His whole bearing was modest and unassuming. He was *quiet*. Yet beneath this quiet exterior there glowed a ceaseless earnestness. You saw it in those well-marked wrinkles between his brows and in the light of those deep-set eyes. You felt it in the tones, the pitch, the quality, the accents, of his quiet voice. You felt too that his words meant all that they said, for they got their meaning from a sincere and serious soul. He was *earnest*.

Those who knew him best would say that this first impression was a true impression of the man. That same quiet earnestness marked all his work and all his intercourse with others. There was a deep furnace of fire in him that was kindled before he was born and that never went out till in one fateful hour the flood of death burst in upon it and extinguished it forever.

To judge of his intellectual ability and quality we must understand the magnitude and the character of his work. To weigh him we need to know the weight of that which he kept in equilibrium. Have you ever visited one of the great insane asylums of Ohio? Have you gone through it from office and wards to kitchen and gardens? Here are from twelve hundred to eighteen hundred or two thousand people—enough to people a village; and about five-sixths of them are entirely dependent, are diseased in mind and many of them sick in body. To care for these, that is, to feed them, to clothe them, to warm them, to give them medical treatment, to exercise personal supervision over them, and to keep in order the buildings and grounds which they occupy, requires a large force of employees. The man who stands at the head of an institution like this needs a genius for organization and government equal to that of the governor of a small province or the general of an army.

But besides these things, he is the representative of the

institution. He must meet the relatives and other friends of the patients. He must entertain visitors. He must be able to present the interests of the institution before the legislature in such a way as to secure funds for its proper support.

How well Dr. Richardson acquitted himself in this difficult and exacting position is matter of public knowledge. From the first he showed his quality. As an assistant physician he was no perfunctory official. He did not merely walk through the wards and prescribe for the sick. He was a student and an observer. He became acquainted with the patients and the attendants. He studied the organization of the institution and the methods of administration. He identified himself with the institutional life and became a breathing and animating part of it. When he became superintendent he at once rose to the situation. His mind had the comprehensive grasp to lay hold of the multitude of details and co-ordinate them into a compact, well-fitting, co-operating unity. His influence was felt as the ruling force in every part, and his purpose was embodied in the harmony and efficiency of the system as a whole. He had largeness of view and strength of will.

But his character had its gentler side. He displayed uniform tact and kindness and generosity. He had an iron hand, but it wore a velvet glove. He knew his patients. He could call many of them, I am assured that he could call most of them, by name. His manner toward them was that of the kind-hearted family physician. He knew the employees also; and he knew not only their names, but their traits and the quality of their work. He was kind and manly in his treatment of them and generous in appreciation of what they did. He was patient toward their shortcomings; but when once he saw the need of severity his decision was final. Dr. Stockton, who was associated with him during his term of service at the Columbus Hospital, and who is now at the head of the institution, says he was both kind and firm and that the patients and the employees loved him.

Amid the multifarious demands of his position he continued to be an enthusiastic student of his profession. He did not lose himself or exhaust his energy in administration. He had a professional interest and a sense of professional pride and

responsibility that only deepened as years went on. He kept himself abreast with the progress of his profession and was hospitable to suggestion from every side. He promptly adopted every new method that commended itself to his judgment, and he must be counted among the foremost of those who have led in the notable amelioration and improvement in the treatment of the insane that have taken place within the last quarter of a century.

Special credit is due to him also for the improved public sentiment in this state on the subject of political interference in the management of the institutions for the unfortunate and dependent classes. Ohio has exhibited some pitiful and disgraceful examples of the demoralizing influence of party politics in these institutions. The effect upon the efficiency of the administration and upon the mental state of the inmates, especially the inmates of a hospital for the insane, is inevitably and deeply detrimental. Against this disease of our body politic, this unmitigated curse to those with whose welfare he was charged, Dr. Richardson made a brave and determined resistance. The small politicians sometimes abused him roundly, but none of these things moved him; and to the last he regarded the political manager and the political place-hunter as chief perils to his work. Public sentiment has gradually grown sounder and stronger, so that there is far less political interference with the state hospitals than formerly; and for this fact the state of Ohio owes a debt to Dr. Richardson and those who stood with him in the contest.

When he went to Washington the magnitude of his work and the consequent demands upon him were greatly increased. The number of patients in the Government Hospital is about twenty-three hundred, and the officers and employees increase the population to about three thousand. The buildings were inadequate and antiquated. He immediately set about improving the institution. His plans were large. He devised liberal things. Additional land must be procured and new, modern, well-equipped buildings must be erected. On him fell the responsibility of leadership and the main part of the burden of the actual work. The first condition of success was money, and this must be obtained by congressional appropria-

tion. He asked for a million dollars. Dr. Gunnell, medical director of the United States Navy, and President of the Board of Visitors of the Hospital, said: "So far as I know, Dr. Richardson was the only man who ever asked Mr. Cannon (the chairman of the House Committee on Appropriations) for an even million dollars and got it at once and without question. Dr. Richardson's representation of the needs of the institution impressed Mr. Cannon so much that he spoke for the appropriation on the floor of the House, and it was passed without a dissenting vote. This million dollars is now being used in the erection of twelve new buildings which are much needed. The general character of these buildings, and to a great extent their architectural details, were determined by Dr. Richardson himself. Architects, electricians, and even sewer builders found that he was well informed in their specialties and could give them practical suggestions. The Visitors state that not only the plans for these buildings but their construction, as far as it has gone, has been under his personal supervision. Can we wonder that with all this added to the burden of administration, he broke down and his beneficent work has been brought to a sudden and final end?

I spoke of the debt we owe him for the service that he has rendered to the unfortunate. But we owe him a still greater debt, for he rendered a still greater service. He was a man. He set for us and our children a high example of manhood. What he did was chiefly valuable for what it showed him to be. He had always before him an ideal of right. He had always within him a sense of duty. Life, all life, to him was moral. His ethical sense permeated his intellect, his affections, his will. With one side of his nature always open toward the world of suffering and misfortune, and associated for some twenty years with a multitude of men and women suffering under one of the heaviest of all human misfortunes, a deranged or benighted mind, he recognized and felt the duty of doing for them all that lay in his power; and there grew up in him and struck root in him the spirit of our great Exemplar, "who went about doing good."

We call him successful. But his success was no accident

He traveled no royal road. The two factors that co-operate in every life that is successful in the real sense of the word, wrought together in his. One of these was his own will. From a boy he lived and worked with a purpose. In early manhood he adopted one far-reaching purpose. He had a vision of the soul and a clear ideal shone out before him. Henceforth to realize that ideal became his supreme end. This purpose molded his thoughts and feelings and gave direction to all his efforts. Year after year he formed himself to it, and year by year he rose nearer and nearer to his ideal. This deep-seated, ever-present and ever-active purpose was the secret of his life and the chief human factor in his career.

But there was another; a factor that wrought in the laws and operations of the world for ages before he was born; that was present in the conditions of his childhood and youth and earlier and later manhood, and, above and beneath all, wrought in his nature, co-operated with his purpose, helped even to form that purpose and bring it to birth,—the ever-present, all-pervading source of all spiritual inspiration. There was a divine factor in his life. "He that wrought him for this self-same thing was God, who also gave unto him the earnest of the spirit."

His stricken family sits before me. They have been plunged without warning into an abyss of darkness. And yet even in this sorrowful and bewildering hour there is comfort and light. What a sacred memory his life will be! What a legacy, his example! The effect which this great affliction shall have on you will depend on the view you take of it and the attitude of mind you assume toward it. If you brood over your loss; if you bewail him as gone and make yourself continually conscious of the great vacancy thus made in your lives, you will be depressed and broken by it. But if you cherish the thought of what he has been to you and continually think of him as near you and try to live as he would want you to live, bravely and hopefully and in strict fidelity to duty; if you live habitually for his sake and seek constantly to be what he would desire you to be; then he will be your inseparable companion and your continual inspiration. And God is near. He is your refuge and strength. May He shelter and sustain you

in this hour of your sorrow and in all the solitude and all the conflict that lie before you!

Address delivered before Columbus, Ohio, Academy of Medicine, June 30, 1903, upon the occasion of the death of Dr. A. B. Richardson.

By H. C. Rutter, M. D.

It seems fitting upon this melancholy occasion that some words be spoken in addition to the formal resolutions which have so well conveyed to the world the esteem in which Dr. Richardson was held by this Academy.

Having for a time sustained a very intimate relationship with Dr. Richardson, I feel that I should embrace this opportunity to add my individual mite to the great mass of testimony showing his worth as a man and value to the world as physician and executive officer, both in making provisions for the care of the insane and their treatment.

For a time we were associated together in the management of the Athens Hospital for the Insane, sustaining the relationship of superintendent and assistant physician. We lived in the same house, ate at the same table, enjoyed the same recreations and social pleasures, and largely shared the same responsibilities of management. It was an epoch, marked in the history of asylum management in this country, and the forerunner of the present liberal treatment of the insane. There, for the first time, all mechanical devices for restraining the insane were thrown aside and Dr. Richardson, although then an assistant, was one of the most valuable aids in the successful accomplishment of that system which is now almost universally adhered to. When I left Athens to assume charge of the Columbus Hospital for the Insane, Dr. Richardson succeeded me as superintendent, and, after an interval of some years, again followed me as superintendent of Columbus Hospital. It is but natural, therefore, that I should have

watched his career with much more than ordinary interest, and so become quite familiar with his social and professional character. I have also met him frequently in the courts as a medical witness, sometimes on the same side but frequently opposed to him. Perhaps no better idea of a man's character can anywhere be more clearly obtained than in a court room, when he is subjected to a long and shrewd cross-examination by a brilliant attorney. It displays the strong and weak points of his character fully.

I do not know of any word which so fittingly describes his mental, moral and physical character as the word "sturdy." He was strong, forceful and determined. No lawyer could shake him out of the position he had assumed, or cause him to waver a hair's breadth from an opinion he had expressed. He was physically strong, and his physical strength seemed in exact proportion to his mental and moral vigor. This purposeful power he brought into action in everything he attempted. No matter how trivial the employment might be, he exhibited the same earnestness of purpose and the same determination to succeed that was so conspicuously marked in his professional career. The deep set eye, the wrinkled brow, the thoughtful, serious expression of his face, marked him in all things as an intense, earnest, determined man. He had a very convivial nature, too, and enjoyed wit and humor to the very fullest extent, but even his sunniest smiles and loudest laughter never quite obliterated the earnest, thoughtful expression. He had exactly the same wrinkles of forehead and the same depth of orbits which so characteristically mark the pictures of Darwin and many others of our deepest thinkers.

His medical attainments were well known to you. You honored him as highly as it was possible for you to honor any man, by calling on him to preside over your deliberations, thus putting the stamp of your approval on his character and professional attainments.

As an executive officer he displayed rare judgment and here his firmness of character and earnestness of purpose were exhibited to the best advantage. His conscientious fidelity to duty, combined with an intelligent energy in the discharge of

duty, and unswerving honesty, won for him the absolute confidence of his official superiors and the respect and admiration of the public.

To him more than all others combined is the State indebted for the new and magnificent hospital at Massillon, Ohio. While yet superintendent of the Columbus State Hospital he planned and supervised the erection of the buildings at Massillon, in the capacity of trustee, and when it was ready for occupancy organized, furnished and opened it as superintendent. His experience therefore extended over the entire range of hospital construction and hospital care for the insane. It reached from the foundation stone through the planning and building period, embracing plumbing, draining, heating, fitting, furnishing, opening, organizing and finally superintending the finished work. It is little wonder then that President McKinley, perfectly familiar with his universal knowledge of the subject, and with his strong, earnest and honest character, should have favored his selection to fill the vacancy of superintendent of the Government Hospital at Washington.

That so strong a man should have been stricken with apoplexy at the early age of fifty-one, especially without any premonitory symptoms, adds to the depression felt by his friends, and their sorrow is still further augmented by the thought that his career of usefulness was but fairly entered upon. Complimented a few weeks ago by an election as President of the Association formed by his brother superintendents of North America, and but recently called upon to inaugurate a new era in the history of the most prominent, because it is the only national hospital for the insane in the United States, he was but crossing the threshold of his national career, or, so to speak, entering upon the second chapter of his life, the first chapter of which was finished when he left Ohio and pages of which are filled with an uninterrupted series of successes. All in all, he was a strong active man, a model husband, an affectionate father, a staunch friend and useful citizen, and whether the State forgets his services or not, he will continue to live in the deeds he has done and the good works he has accomplished.

GEORGE W. FOSTER, M. D.

*By I. W. Blackburn, M. D.,
Washington, D. C.*

Dr. George Winslow Foster, Superintendent of the Eastern Maine Insane Hospital, Bangor, Maine, died January 4, 1904, in the fifty-ninth year of his age.

The circumstances attending his untimely end were peculiarly sad, following as it did, one week after the death of his wife. Mrs. Foster was taken ill with double pneumonia December 23rd, and notwithstanding all care and skill of her devoted husband, the disease ended fatally December 28th.

Dr. Foster was ill at the time, and on his return from the funeral was almost immediately prostrated by the same disease, which soon invaded both lungs. Disheartened by his great loss and physically debilitated he recognized his danger at once, but his fortitude did not fail him, and with clear insight he directed his physicians and strove bravely to live for the sake of his family and the work he still wished to do; yet when the summons came it found him ready to accept the inevitable at the call of the Master.

Dr. Foster was born in Burnham, Maine, in 1845, but resided in Bangor from early childhood and there married Miss Charlotte E. Adams, daughter of Rev. A. C. Adams, now of Wethersfield, Connecticut. He graduated from Bowdoin College in 1868, and received his medical degree from the same school in 1871. This excellent preparation he supplemented by post-graduate studies in special lines in the medical schools of Boston and New York.

Early in his career he adopted the specialty in which he became eminent. He served as assistant physician at Taunton, Massachusetts, and Concord, New Hampshire, whence he was

called to the position of assistant in charge of the female department, at the Government Hospital for the Insane, which situation he filled for two years,—1880-1882. On account of business interests and some failure of health, he then resigned to engage in private practice in Iowa, and later in Salt Lake City, Utah; but again in 1893, he accepted the position of assistant under Dr. Godding at St. Elizabeth, and remained in this service until January 1, 1901, when he was called to the superintendency of the Eastern Maine Insane Hospital, which was opened under his direction July 1, 1901.

While at the Government Hospital for the Insane, Dr. Foster inaugurated a training school for nurses afterward completed by Dr. A. B. Richardson; he introduced the hydric treatment of mental diseases in our institution; and by his advocacy and medical contributions directed more general attention to this and other valuable somatic therapeutic agents in the treatment of insanity.

In the institution under his care he organized a training school for nurses, now in successful operation; he adopted with the best results, his favorite methods of treatment; he installed and operated with success an electro-therapeutic system, and in every respect endeavored to advance his hospital to the foremost requirements of scientific treatment.

In evidence of the esteem in which he was held by those closely associated with him in his hospital work, I would here give the resolution adopted by the Board of Trustees of the Eastern Maine Insane Hospital; and a letter received from Hon. Frederick Robie, President of the State Board of Trustees, which I have permission to use.

At a full board meeting of the trustees, at which the following members were present: Hon. Frederick Robie, Herbert T. Powers, Mrs. J. R. Smith, Thomas White, Sidney M. Bird, Charles E. Field and George E. Macomber, the following resolution was unanimously adopted:

Voted, That the following resolution be adopted, spread upon the records and a copy thereof be forwarded to the family of the late George W. Foster:

Resolved, That the trustees of insane hospitals express to the family of the lamented Superintendent of the Eastern

Maine Insane Hospital, George W. Foster, M. D., their deep sorrow at his untimely death. A man of pure and upright character, ever attentive to duty, of great eminence in the profession which he adorned, his death comes as a personal sorrow to each of us and is a well-nigh irreparable loss to the hospital whose affairs he so ably administered.

HERBERT T. POWERS,
Secretary.

Bangor, Maine, Jan. 13, 1904.

Portland, Maine, May 12, 1904.

Dear Sir:—

I favored the selection of Dr. George W. Foster as Superintendent of the Maine State Insane Hospital, for he was a native of our state, a fellow-graduate of Bowdoin College, and was highly recommended by a numerous class of distinguished citizens who had the best opportunity to judge of his attainments and efficiency. After his appointment, I felt a deep interest in his success, and being associated with him as President of the State Board of Trustees, I had a favorable opportunity to judge of his personal merits. During his term of office of over two years, which was suddenly terminated by an unexpected summons from Providence to the realities of a future and better life, I always found him in his intercourse with myself, a perfect gentleman and zealous and interested in the advancement of the institution over which he presided with much care and watchfulness. He was a student and scholar, and had a high purpose and aim to become well acquainted with all modern medical improvements, and to employ those advances made in every department of medical science. He was earnest in doing that which would develop and establish the normal condition of those insane patients under his charge. He early instituted a method of instruction and study in the hospital, which entitled an attendant in the hospital to a diploma, the reception of which would place such a person, for future service, among the trained and educated nurses of the state. His interest never faltered in his work and was never dormant.

The grounds of the new hospital will always show a correct idea of the beautiful, which was the result of his own direction and oversight.

We have parted with an accomplished and excellent man, of scholarly attainments, and devoted to the best interests of humanity. He has passed away, carrying with him the mingled sorrow of an interested family, the high respect of a Board of Trustees, and the deep regrets of the citizens of the state of Maine.

I am, very respectfully yours,
FREDERICK ROBBIE, *President.*

Dr. Foster was a man of high culture and eminent in professional attainments; he was tireless in the acquisition of

scientific knowledge required in his exacting specialty; an extensive and discriminating reader; and his contributions to medical literature are of high character. Among these were the following, published in recent years:

"Hydric Treatment of the Insane," (with extensive bibliography). *American Journal of Insanity*, Vol. LV, No. 4, 1899.

"Common Features in Neurasthenia and Insanity, Their Common Basis and Common Treatment." *American Journal of Insanity*, Vol. LVI, No. 3, 1900.

"Responsibility in Mental Diseases." *Maine Medical Association*, June 4, 1902.

"School Life as Relative to the Developmental Period." *Medical Society of the District of Columbia*, Washington.

His hospital reports are highly instructive; showing the status of medical treatment in a hospital for the insane fully abreast with the foremost.

Dr. Foster was a member of the American Medico-Psychological Association, the Maine Medical Association, Penobscot Medical Association, Medical Society of the District of Columbia, and other scientific societies of Washington, and was professor of nervous and mental diseases in the medical department of the Columbian University, Washington, D. C.

Dr. and Mrs. Foster leave three children on whom falls most grievously the double loss of kind and devoted parents. Dr. B. O. Foster, instructor in Leland Stanford University, Palo Alto, California; Mrs. Margaret Foster Howard, wife of Dr. B. F. Howard, of the hospital staff, and George A. Foster, a member of the junior class of Bowdoin College, now of the Leland Stanford University.

Profound as is the loss of such a man as Doctor Foster to the medical profession, to the hospital which he so ably conducted, and to his many sincere friends, we feel that on his family has fallen the deepest affliction in this double bereavement, and to them we extend our heartfelt sympathy.

JOHN BERNARD MURPHY, M. D.

*By R. W. Bruce Smith, M. D.,
Toronto, Ontario.*

Dr. J. B. Murphy, medical superintendent of the Asylum for the Insane, at Brockville, Ontario, died very suddenly January 17, 1904.

He was born in Peterborough county, Ontario, March 31, 1850, and was therefore at the time of his death in the fifty-fourth year of his age. He was educated at Norwood High School and at St. Michael's College, Toronto, before entering upon his professional studies. He graduated in medicine, the prize man of his year, at Queen's University, 1876. He began the practice of medicine at Belleville, Ontario, and continued a highly successful career with a large clientele until the year 1890, when he became resident physician at Mimico Asylum. In 1894, when the asylum was opened at Brockville, he was promoted to be medical superintendent, a position which he held until the date of his death.

While the individuality which makes prominent the lives of persons and develops character is often dependent upon environment, and the manner in which surroundings influence thought and action, there are other manifestations of it as personalities, who make their lives emphatic in the line of their calling, by in reality giving character to the environment, and by making the latter subservient rather than a conditioning cause. In the former class there are grouped those who are content to take for granted the experiences of others, and to make the latter a dictum as to what shall be the guiding influence of thought and action; in the other class are found personalities who, while willing to accept what has

been done, it only becomes a law unto them, when by analysis it presents the same relation in application; and it is to this latter class in all the learned professions that belongs the credit of establishing the advanced lines of thought and action now prevailing.

To this latter class of individuals Dr. John B. Murphy must be placed as belonging. His early boyhood, envired as it was by surroundings calculated to develop the sturdy qualities of mind and muscle, kindled within him an ambition to attain success. With wonderful perseverance he never thought of failure. At college he was a diligent and faithful student and when his collegiate course was finished he entered upon his chosen field with the same determination to succeed as had characterized his former years. Genial and pleasant in address with a kindly disposition he made many friends. In the field of general practice he very soon attained a very worthy position, and by his earnest attention to his patients won the confidence of a large circle of people who esteemed him for his untiring devotion and faithfulness as a physician and a friend.

In 1881, in addition to attending to the exacting calls of a laborious practice, he accepted the position of attending physician to the Institute for the Deaf and Dumb at Belleville, and continued to discharge the duties thereof until his appointment in 1890 to the position of resident physician at Mimico Asylum. The latter institution was at that time a branch of Toronto Asylum. He brought to the duties of his new position a ripened experience attained in the field as a general practitioner. The kindly disposition which he had always manifested was naturally calculated to make him popular as an asylum officer. His work at Mimico was that common to all new institutions, and it fell to him to lay the foundation and direct the early course of the asylum through many discouragements. When, in 1894, the new asylum on the banks of the St. Lawrence River was completed, Dr. Murphy was promoted to the position of medical superintendent. In his new home he soon made friends and entered upon the duties of his new position with zeal and energy. He had a staff of officers, many of whom were without experience in

institution work. The patients were for several years admitted for the most part by transfer from other asylums, and in Ontario, as elsewhere, such admissions do not furnish a very interesting or hopeful class to labor for. This, however, did not afford any discouragement to Dr. Murphy. He sought to bring to the institution everything calculated to make its surroundings comfortable and home-like. He was a man of an independent nature and sought to carry out his own plans and ideals for making the institution what he conceived it should be. While recognizing the necessity for discipline he sought out and followed a pathway which he endeavored to make most peaceful for everyone. He was a man who always sought to avoid trouble and friction with everyone. While naturally of a most affectionate nature he was possessed of a native caution and modesty which made him slow to form friendships and diffident in asserting himself among strangers. He always took a patriotic interest in everything pertaining to the welfare of Canada, but never took a prominent part in public affairs. Those who knew him intimately found him an excellent conversationalist and always ready to listen with the greatest deference to those with whose opinions he might differ. He was a broad-minded man, and his individuality was perhaps more marked by those who did not know him intimately than by those who were brought in daily contact with him. His wish was that the patients entrusted to his care might have every comfort. He was especially desirous of having the term asylum made obsolete, and sought to bring on all occasions the hospital aspect to the institution. He was a thoughtful reader and delighted in perusing the reports of the work others were doing in the great field of psychiatry. While never taking any active part in the proceedings of the American Medico-Psychological Association he enjoyed attending its meetings, and had a keen appreciation of the privileges he there enjoyed. He was present with his wife and daughter at the meeting last year in Washington and thoroughly appreciated the reunion with his co-workers on that occasion.

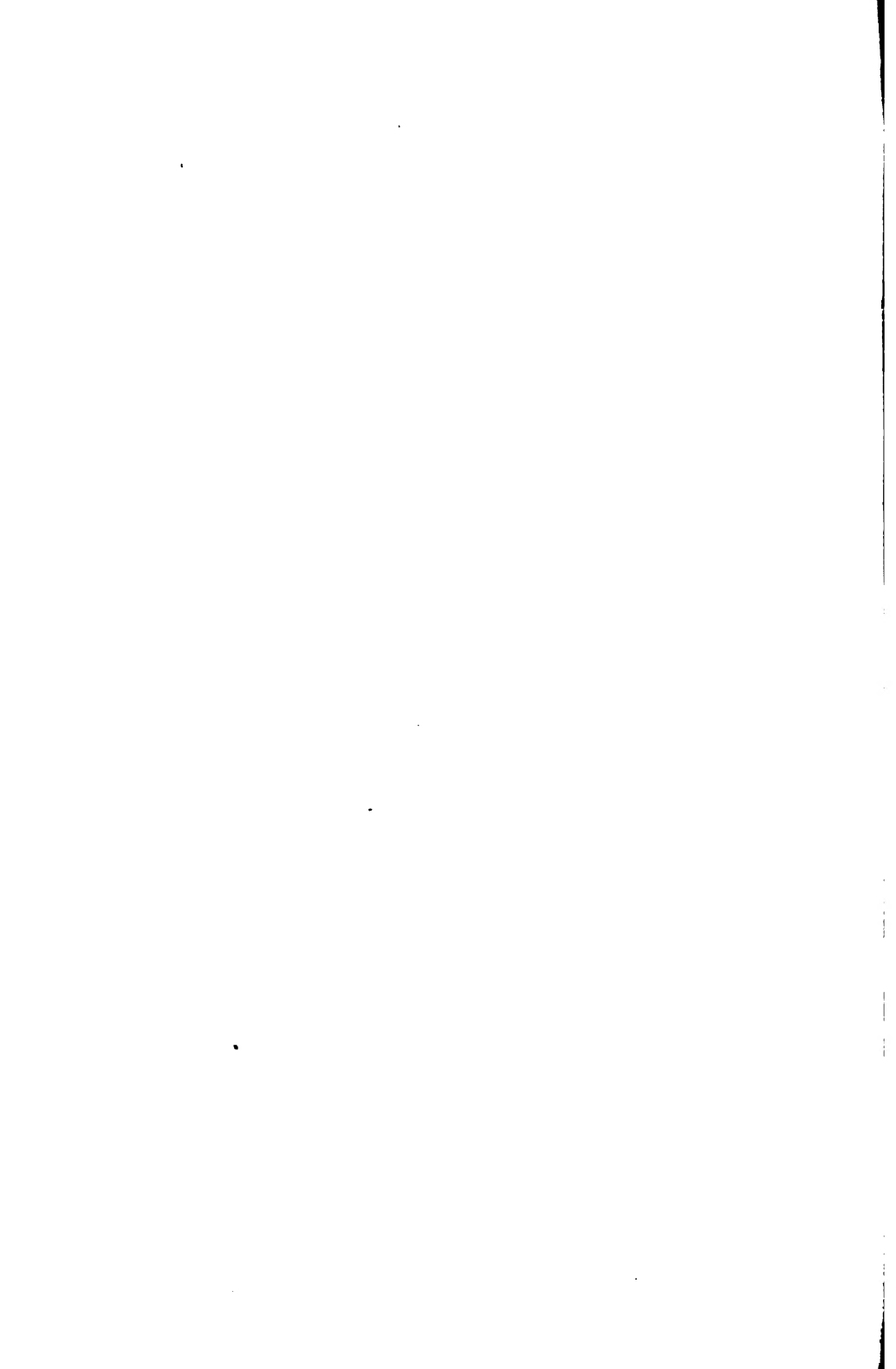
The home life of Dr. Murphy was exceptionally happy. He was a great lover of children, and he was never too busy to lay aside anything to gratify and delight the little ones. On

the very morning of his death he took an active part by entering into some innocent pleasures at his own fireside. With a genial greeting to his associates he left the executive building of the institution on Saturday evening apparently in his usual good health, and the last we saw of him in life was drawing one of his young children on a sled down the avenue to his residence, while another ran by his side in cheerful glee with the pleasure the little company so much enjoyed. The following day being Sunday he attended church in Brockville and walked a good part of the way home. When he arrived at his house he complained of feeling faint, and lying down on a couch his condition was noticed to be serious. Before a physician from the institution could reach the house his spirit had fled. Cardiac degeneration had long been suspected, but with that prudence and caution so characteristic of the man he seldom or never made any reference to his physical condition. The suddenness of his death, it need not be said, came as a fearful shock to everyone. To Mrs. Murphy and the six children, so unexpectedly called to mourn the loss of an affectionate husband and father, were extended the heartfelt sympathies of a large circle of friends. On January 20th his remains were laid away and a last tribute of respect was paid to the memory of one who had for ten years been actively engaged in directing the management of the Brockville Asylum.

INDEX.

- Abbot, Dr. E. Stanley, 284.
 Address of Dr. Chas. G. Chaddock, 73, 82.
 Address of Gov. A. M. Dockery, 55.
 Address of Dr. Wm. G. Moore, 60.
 Address of Dr. John H. Simon, 59.
 Address of the President, 71, 418.
 Amnesia, 268.
 Annual Address, 82.
 Appropriation, Am. Jour. Insanity, 64.
 Bancroft, Dr. C. P., 295, 308.
 Blackburn, Dr. I. W., 460.
 Blood Stain, Recent, 309.
 Blood Test, New, 309.
 Borderline, Two Cases, 262.
 Burgess, Dr. T. J. W., 80.
 Burr, Dr. C. B., 64, 71, 73, 77, 80, 118, 315.
 Burrell, Dr. Dwight R., 237.
 By-Laws, 52.
 Carlisle, Dr. Chester Lee, 100.
 Chaddock, Dr. Chas. G., 82.
 Clark, Dr. J. C., 119.
 Coe, Dr. H. W., 79.
 Committee to Discuss Dr. Punton's Paper, 75, 78.
 Committee, Auditing, 72, 74, 76.
 Committee on Resolutions, 76, 78.
 Committee, Nominating, 64, 72.
 Constitution, 47.
 Copp, Dr. Owen, 124.
 Council, Report of, 64, 76, 77.
 Crandall, Dr. Geo. C., 309, 316.
 Cretinism, Mental Condition in, 387.
 Criminal Conduct, Are Insane Responsible for, 316.
 Dementia, Organic, 331.
 Dewey, Dr. Richard, 73, 328.
 Dockery, Hon. A. M., 55.
 Epilepsy, Mental, Need for Study, Etc., 120.
 Ether; Use of Reveals Malingery, 148.
 Everts, Dr. Orpheus, 431.
 Eyman, Dr. Henry C., 446.
 Foster, Dr. Geo. W., 460.
 Fry, Dr. Frank R., 444.
 Geographical Distribution, Members and Institutions, 27.
 Graves, Dr. M. L., 79.
 Hallucinations, 311.
 Haviland, Dr. C. Floyd, 100.
 Hill, Dr. C. G., 73.
 Hill, Dr. Gershom H., 274.
 Honorary Members, 46.
 Hughes, Dr. Chas. H., 119, 268, 307, 315, 329.
 Hydrotherapeutics, 404.
 Insane; Are They Responsible for Criminal Acts? 316.
 Insane, Tent Treatment of, 100.
 Insanity, Feigned, 148.
 Insanity, Moral, Case of, 188.
 Insanity, Incipient, 141.
 Insanity and Suicide, 274.
 Insanity, General Conditions Associated with, 369.
 Journal of Insanity, Appropriation, 64.
 Journal of Insanity, Report of Editors, 74.
 Keniston, Dr. J. M., 331.
 Kilbourne, Dr. A. F., 308.
 Langdon, Dr. F. W., 330, 431.
 Law, Plea for Hospital Observation, 154.
 List of Members, 9.
 Macdonald, Dr. A. E., 55, 59, 60, 63, 71, 72, 73, 80, 118, 326, 418.
 Malingery, Revealed by Ether, 148.
 Mayer, Dr. Edward E., 387.
 Members, Election of, 65, 72.
 Members, Geographical Distribution of, 27.
 Members, List of, 9.
 Members Present, 67.
 Memorial Notices, 431.
 Mental Condition in Cretinism, 387.
 Mills, Dr. Chas. K., 249.

- Moore, Dr. Dwight S., 120.
 Moore, Dr. Wm. G., 60.
 Murphy, Dr. John Bernard, 464.
- Neff, Dr. Irwin H., 167.
 Nominating Committee, 64, 72.
 Note, 53.
 Nurses, Disparity Between Hospital and Asylum Trained, 295.
- Observation Wards, Remarks about, 284.
 Officers, iii, v, 72.
 Organic Dementia, 331.
- Paranoia, Etc., 249.
 Pilgrim, Dr. Chas. W., 81.
 Place of Meeting, 77.
 Popular Prejudice, 142.
 Presidential Address, 418.
 Proceedings of the Sixtieth Annual Meeting, 55.
 Punton, Dr. John, 78, 316, 330.
- Report of Committee on Resolutions, 78.
 Report of Council, 64, 76, 77.
 Report of Editors, Journal of Insanity, 74.
 Report of Dr. Edwards, Delegate to British Medico-Psychological Association, 78.
 Report of Nominating Committee, 64, 72.
- Report of Treasurer, 66.
 Richardson, Dr. A. B., 446.
 Riggs, Dr. C. Eugene, 263.
 Runge, Dr. Edward C., 444.
 Russell, Dr. James, 140.
 Rutter, Dr. H. C., 457.
- Scotch Lunacy System, Characteristics of, 124.
 Scott, W. H., 448.
 Simon, Dr. John H., 59.
 Sleep-Talking, A Case of, 237.
 Smith, Dr. R. W. Bruce, 464.
 Sprague, Dr. Geo. P., 326.
 Stedman, Dr. Henry R., 154, 188.
 Suicidal Propensity, 262.
 Suicide and Insanity, 274.
- Tent Treatment of Insane, 100.
 Tomlinson, Dr. H. A., 327, 369.
 Treasurer's Report, 66.
 Treasurer's Statement, 67.
 Tumors, Intracranial, 167.
 Tuttle, Dr. George T., 404.
- Voluntary Admission, A Plea for, 140.
- Wagner, Dr. Chas. G., 148, 328.
 Well Poisoning, A Case of, 154.
 Woodson, Dr. C. R., 58.
 White, Dr. Wm. A., 211.





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